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Investigating  
ePortfolios from teacher  
training to the workplace

Thesis

Submitted for the degree of

Doctorate of Education (EdD)

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MAODE (Open), MAEd, MBI, LLB, BEcon (Hons)

The Open University,  
Milton Keynes, UK

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## Abstract

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This study investigates the transfer of ePortfolio practice from teacher training to the workplace, drawing on three case studies of secondary school teachers from different disciplines (IT, science, maths and foreign languages) who built their ePortfolios during pre-service training. It examines why teachers continue or cease ePortfolio practice, their trainers' and supervisors' perceptions of ePortfolio transfer, and the perceived usefulness of continuing ePortfolio practice at work. It also explores the hypothesis that ePortfolio practices, as a process, may be more subject to transfer than ePortfolios themselves, and compares results to other interviews with in-service teachers made during the preparation of this study and to the latest research on ePortfolio practice in teacher training.

The study adopts a practical method of enquiry, based on artefacts produced by teachers. The theoretical framework is based on Cultural-Historical Activity Theory (CHAT) and Technology Acceptance Model (TAM) to analyse external and internal causes that may impact on transfer of ePortfolio practice. The main research method was face to face and computer mediated semi-structured interviews, together with post-interview questionnaires and analysis of teachers' ePortfolio artefacts.

The findings reveal that teachers' ePortfolio practice rapidly fades after they begin work, or in many cases is never transferred. Analysis shows that the main reason for this is the lack of perceived usefulness of the ePortfolio at the workplace, together with the absence of communities of practice within schools where participants were working: social or geographical variables such as provenance, sex or age do not appear to play a role.

The conclusion suggests separating the teaching of the use of ePortfolio management systems from the teaching of ePortfolio practices and offers a model for studying the latter which pays particular attention to the impact of the tensions between different elements which CHAT identifies.

**Keywords:** *ePortfolio, teacher training, knowledge transfer, CHAT, Cultural-Historical Activity Theory, Activity Theory, ATePP*

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I would also like to express my immense gratitude to the Association of Open University Graduates Foundation for Education (AOUG) who awarded this thesis the Vice Chancellor Sir John Daniel Award for Education and Language Studies.

This thesis would have never been finished without the help and understanding of my partner, Judith McLaren, who was its first and last critical reader.



To my dad, Emile  
(1939-2014)

His son: *Dad. Could you explain relativity theory to me please?*

My dad: (after a long silence) *Son. In life, (pause) everything is relative.*

I wish that the reader will find as much ‘relatively’ useful information as I could possibly put in this work.

# Contents

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<b>ABSTRACT</b>	<b>I</b>
<b>ACKNOWLEDGEMENTS</b>	<b>III</b>
<b>CONTENTS</b>	<b>VII</b>
<b>LIST OF FIGURES</b>	<b>XI</b>
<b>LIST OF TABLES</b>	<b>XIII</b>
<b>LIST OF ABBREVIATIONS</b>	<b>XV</b>
<b>CHAPTER ONE INTRODUCTION</b>	<b>5</b>
<b>1.1 PORTFOLIOS AND EPORTFOLIOS</b>	<b>5</b>
<b>1.2 TRANSFER OF EPORTFOLIO PRACTICE</b>	<b>7</b>
<b>1.3 BEGINNING OF TEACHERS' PROFESSIONAL CAREERS</b>	<b>8</b>
<b>1.4 RESEARCH AIMS</b>	<b>10</b>
1.4.1 TEACHERS	11
1.4.2 EDUCATORS	11
1.4.3 SUPERVISORS	12
<b>1.5 DEFINITIONS</b>	<b>12</b>
1.5.1 'TEACHERS'	12
1.5.2 'TEACHER TRAINING'	13
<b>1.6 EPORTFOLIOS AND EPORTFOLIO PRACTICES IN THIS STUDY</b>	<b>14</b>
<b>1.7 CONCLUSION</b>	<b>16</b>
<b>CHAPTER TWO LITERATURE REVIEW</b>	<b>17</b>
<b>2.1 PORTFOLIOS, EPORTFOLIOS AND EPORTFOLIO PRACTICE</b>	<b>17</b>
2.1.1 THE MULTIPLE FACES OF PORTFOLIOS AND EPORTFOLIOS	17
2.1.2 EPORTFOLIO PRACTICE IN EDUCATION	21
<b>2.2 TRANSFER OF KNOWLEDGE</b>	<b>22</b>
2.2.1 THEORIES OF KNOWLEDGE TRANSFER	22
2.2.2 TRANSFER OF EPORTFOLIO PRACTICE	23
<b>2.3 STAKEHOLDERS' PERCEPTIONS OF EPORTFOLIO PRACTICE</b>	<b>24</b>
2.3.1 TEACHERS' PERCEPTIONS OF EPORTFOLIO PRACTICE	25
2.3.2 EDUCATORS' PERCEPTIONS OF EPORTFOLIO PRACTICE	26
2.3.3 SUPERVISORS' PERCEPTIONS OF EPORTFOLIO PRACTICE	29
<b>2.4 FRAMEWORKS IN EPORTFOLIO PRACTICE RESEARCH</b>	<b>30</b>
<b>2.5 SUPPOSITIONS AND RESEARCH QUESTIONS</b>	<b>31</b>
2.5.1 SUPPOSITIONS	31
2.5.2 RESEARCH QUESTION 1: WHAT EPORTFOLIO PRACTICES ARE TRANSFERRED FROM TEACHER TRAINING TO THE WORKPLACE?	32
2.5.3 RESEARCH QUESTION 2: WHAT ARE EDUCATORS' AND SUPERVISORS' PERCEPTIONS OF TEACHERS' EPORTFOLIO PRACTICE?	34
2.5.4 RESEARCH QUESTION 3: WHAT EXTERNAL FACTORS INFLUENCE THE TRANSFER OF EPORTFOLIO PRACTICE?	34
<b>CHAPTER THREE METHODOLOGY</b>	<b>37</b>
<b>3.1 CONCEPTUAL FRAMEWORKS AS TOOLS FOR RESEARCH</b>	<b>37</b>
3.1.1 EXPLORATION PHASE	39
3.1.2 DESCRIPTION PHASE	39
3.1.3 GAUGING PHASE	40
3.1.4 DECISION MAKING PHASE	41
3.1.5 EXPLANATION PHASE	41

<b>3.2</b>	<b>MY RESEARCH FRAMEWORK</b>	<b>42</b>
3.2.1	ONTOLOGICAL AND EPISTEMOLOGICAL APPROACHES	42
3.2.2	THEORY	45
3.2.3	MODELS, IDEAL-TYPE AND TYPOLOGY	54
<b>3.3</b>	<b>FRAMEWORK OF THE THREE CASE STUDIES</b>	<b>57</b>
3.3.1	CONCEPTUAL FRAMEWORK	58
3.3.2	SEARCHING FOR PARTICIPANTS	62
3.3.3	REFLECTION ON THE RECRUITMENT OF PARTICIPANTS	65
3.3.4	DATA COLLECTION METHODS	68
3.3.5	DATA ANALYSIS	71
3.3.6	CODING THE COLLECTED MATERIAL	77
<b>3.4</b>	<b>ETHICAL CONSIDERATIONS</b>	<b>80</b>
3.4.1	PARTICIPANTS' EXPECTATIONS	81
3.4.2	DATA PROTECTION	82
3.4.3	OPENNESS AND INTEGRITY	83
3.4.4	PARTICIPANTS' CONSENT AND ETHICS PROTOCOL	85
<b>CHAPTER FOUR</b>	<b>THREE CASE STUDIES</b>	<b>87</b>
<b>4.1</b>	<b>THE FRENCH CASE STUDY</b>	<b>87</b>
<b>4.2</b>	<b>THE SWISS CASE STUDY</b>	<b>88</b>
4.2.1	DATA COLLECTION IN SWITZERLAND	88
<b>4.3</b>	<b>THE AUSTRIAN CASE STUDY</b>	<b>90</b>
4.3.1	DATA COLLECTION IN AUSTRIA	90
<b>4.4</b>	<b>COMPARISON OF THREE CASE STUDIES</b>	<b>93</b>
<b>CHAPTER FIVE</b>	<b>DISCUSSION OF FINDINGS</b>	<b>97</b>
<b>5.1</b>	<b>MAIN FINDINGS</b>	<b>97</b>
<b>5.2</b>	<b>TRANSFER OF EPORTFOLIO PRACTICES</b>	<b>98</b>
5.2.1	PROOF OF PRE-EXISTING EPORTFOLIO PRACTICE	99
5.2.2	PROOF OF TRANSFER OF SOME PRACTICES	100
5.2.3	ABOUT THE NATURE OF TEACHERS' PERCEIVED EASE OF USE AND PERCEIVED USEFULNESS OF EPORTFOLIOS	106
5.2.4	CONCLUSIONS ABOUT THE TRANSFER OF EPORTFOLIO PRACTICE	108
<b>5.3</b>	<b>OTHER STAKEHOLDERS' PERCEPTIONS OF TEACHERS' EPORTFOLIO PRACTICE</b>	<b>110</b>
5.3.1	DURING TEACHER TRAINING – THE EDUCATORS' PERSPECTIVE	111
5.3.2	IN THE WORKPLACE – THE SUPERVISORS' PERSPECTIVE	116
<b>5.4</b>	<b>FACTORS THAT INFLUENCE THE TRANSFER OF EPORTFOLIO PRACTICE</b>	<b>119</b>
5.4.1	THE 'RELATIONSHIP' GROUP OF TENSIONS	120
5.4.2	THE 'TECHNICAL' GROUP OF TENSIONS	123
5.4.3	THE 'ORGANISATIONAL' GROUP OF TENSIONS	124
<b>5.5</b>	<b>LIMITATIONS OF THIS RESEARCH</b>	<b>127</b>
<b>CHAPTER SIX</b>	<b>CONCLUSION</b>	<b>131</b>
<b>6.1</b>	<b>DEVELOPING TRANSFER OF EPORTFOLIO PRACTICE</b>	<b>131</b>
6.1.1	RECOMMENDATIONS FOR SUPERVISORS	131
6.1.2	RECOMMENDATIONS FOR EDUCATORS	133
6.1.3	RECOMMENDATIONS FOR OTHER EPORTFOLIO STAKEHOLDERS	135
6.1.4	RECOMMENDATIONS FOR TEACHERS	136

<b>6.2</b>	<b>CONTRIBUTION TO KNOWLEDGE</b>	<b>137</b>
6.2.1	METHODOLOGICAL CONTRIBUTION	137
6.2.2	CONTRIBUTION TO EPORTFOLIO AND TEACHER TRAINING RESEARCH	137
6.2.3	CONTRIBUTION TO PROFESSIONAL PRACTICE	138
<b>6.3</b>	<b>PROPOSALS FOR FURTHER RESEARCH</b>	<b>139</b>
<b>REFERENCES</b>		<b>143</b>
<b>APPENDIX 1 – A BRIEF HISTORY OF PORTFOLIOS AND EPORTFOLIOS</b>		<b>169</b>
<b>APPENDIX 2 – SOME CONSIDERATIONS ON THE LITERATURE REVIEW</b>		<b>173</b>
<b>APPENDIX 3 – PERSONAL NOTES ON KEY CONCEPTS IN MY SEARCH FOR A CONCEPTUAL FRAMEWORK</b>		<b>177</b>
<b>APPENDIX 4 – LIST OF GROUPS ON DIVERSE NETWORKS USED TO RECRUIT PARTICIPANTS</b>		<b>179</b>
<b>APPENDIX 5A – PROJECT INFORMATION SHEET (ENGLISH VERSION)</b>		<b>181</b>
<b>APPENDIX 5B – PROJECT INFORMATION SHEET (FRENCH VERSION)</b>		<b>182</b>
<b>APPENDIX 5C – PROJECT INFORMATION SHEET (GERMAN VERSION)</b>		<b>183</b>
<b>APPENDIX 6A – CONSENT FORM (ENGLISH VERSION)</b>		<b>185</b>
<b>APPENDIX 6B – CONSENT FORM (FRENCH VERSION)</b>		<b>186</b>
<b>APPENDIX 6C – CONSENT FORM (GERMAN VERSION)</b>		<b>187</b>
<b>APPENDIX 7 – PRE-INTERVIEW QUESTIONNAIRE</b>		<b>189</b>
<b>APPENDIX 8 – MAIN QUESTIONS ASKED DURING SEMI-STRUCTURED INTERVIEWS</b>		<b>191</b>
<b>APPENDIX 9 – EXAMPLE OF A TRANSCRIPTION OF ONE INTERVIEW</b>		<b>193</b>
<b>APPENDIX 10 – EXCERPT FROM ONE INTERVIEW WITH CODE (FIRST CYCLE OF CODING)</b>		<b>205</b>
<b>APPENDIX 11 – HREC AGREEMENT FOR CONTINUING THE RESEARCH</b>		<b>217</b>
<b>APPENDIX 12 – CONTEXT OF THE FRENCH CASE STUDY</b>		<b>219</b>
<b>APPENDIX 13 – CONTEXT OF THE SWISS CASE STUDY</b>		<b>223</b>
<b>APPENDIX 14 – CONTEXT OF THE AUSTRIAN CASE STUDY</b>		<b>227</b>
<b>APPENDIX 15 – COMPETENCES FRAMEWORK FOR SWISS TRAINEE TEACHERS</b>		<b>231</b>
<b>APPENDIX 16 – EXAMPLE OF ONE « PIÈCE » SWISS TRAINEE TEACHERS MUST PROVIDE DURING THEIR COURSE ON TEACHING IT</b>		<b>233</b>

## List of figures

---

Figure 1-1:	<i>My model of ePortfolio practice and ePortfolios</i>	15
Figure 3-1:	<i>Combination of Grix (2010) and Shields (2013)'s models of conceptual frameworks</i>	38
Figure 3-2:	<i>Adapted from Grix (2010), composition and evolution of a methodological framework</i>	43
Figure 3-3:	<i>The Engeström triangle or second generation of CHAT (Engeström, 1987)</i>	49
Figure 3-4:	<i>Example of actions, operations in the activity of developing ePortfolio practices</i>	49
Figure 3-5:	<i>The TAM model, adapted from Davis (1993, p. 476)</i>	53
Figure 3-6:	<i>Presentation of my model of acceptance of transfer of ePortfolio practice (ATePP)</i>	55
Figure 3-7:	<i>The ePortfolio stakeholders' interactions, based on Singh and Ritzhaupt (2006)</i>	59
Figure 3-8:	<i>Interactions between the groups of participants, based on Singh and Ritzhaupt, (2006)</i>	60
Figure 3-9:	<i>Evolution of the search for three terms related to ePortfolio. Made by the author with Google Trend.</i>	66
Figure 3-10:	<i>Three main elements that influence all the others based on Engeström (1999)</i>	72
Figure 3-11:	<i>Example of a graphical analysis of five interviews</i>	80

(Note: The numbers reflect the chapter and the order in which the figures appear within the chapter)

## List of tables

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Table 1-1:	<i>ePortfolio practice stakeholders in my study</i>	10
Table 3-1:	<i>Elements of ATePP that form the two Engeström triangles</i>	56
Table 3-2:	<i>Choosing a research strategy, Rowley (2002, p.17, Figure 1)</i>	58
Table 3-3:	<i>Four types of tensions possible in the CHAT model, adapted from Engeström (1999)</i>	72
Table 4-1:	<i>Participants in the French case study</i>	88
Table 4-2:	<i>Participants in the Swiss case study</i>	89
Table 4-3:	<i>Data collection summary in the Austrian case study</i>	93
Table 4-4:	<i>Access to participants' ePortfolio artefacts in each case study</i>	94
Table 5-1:	<i>Presentation of my three groups of tensions among the three case studies</i>	121

(Note: The numbers reflect the chapter and the order in which the tables appear within the chapter)

## List of abbreviations

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AACU	Association of American Colleges and Universities
AT	Activity Theory
BA	Bachelor of Arts
BI	Behavioural Intentions
BSc	Bachelor of Science
CAQDA	Computer Assisted Qualitative Data Analysis
CHAT	Cultural-Historical Activity Theory
CERD	Consequential, Ecological, Relational, Deontological
CDP	Continuous Development Planning (see also PDP)
CMS	Course Management System
CoP	Community of Practice
DP	UK Data Protection Act 1998
ePIC	ePortfolio and Identity Conference
EVM	École Vaudoise en Mutation (Reform of the Vaud School System)
FE	Further Education
GETAMEL	General Extended Technology Acceptance Model for ELearning
GT	Grounded Theory
HE	Higher Education
HEP	Haute Ecole Pédagogique
HR	Human Resources
HTML	HyperText Markup Language
IT	Information Technology
IUT	Institut Universitaire et Technique (University of Technology)
JISC	Joint Information Systems Committee
LPP	Legitimate Peripheral Participation
ATePP	Acceptance of Transfer of ePortfolio Practice model
NQT	Newly Qualified Teacher
OPP	Open Portfolio Project
OU	The Open University
PDP	Personal Development Planning (see also CDP)
PDLT	Portfolio Development and Learning Theories
PEU	Perceived ease of use
PGCE	Post Graduate Certificate of Education
PHS	Pädagogische Hochschule
PU	Perceived usefulness

RQ	Research Question
SDT	Self-Determination Theory
TAM	Technology Acceptance Model
TEL	Technology Enhanced Learning
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
UTAUT	Unified Theory of Acceptance and Use of Technology
ZPD	Zone of Proximal Development



## Prolegomena

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The initial impulse for this research came from my personal experience. In 2012, I was invited to talk about the use of ePortfolios in Europe at ePIC, the annual ePortfolio and Identity Conference in London.

At the beginning of my presentation, I asked my audience of international ePortfolio experts three questions:

1. Do you think an ePortfolio is a strategic tool to document professional development and lifelong learning?
2. Have you yourself made an ePortfolio in the past?
3. Do you still maintain an ePortfolio today?

There was unanimous agreement on the first question, to which the answer was yes, and an equally positive response to the second – most of my audience had built an ePortfolio at some point. But what was a total surprise to me was that none of these ePortfolio experts claimed they still maintained this ‘strategic tool’ in the present day.

This revelation made me reflect on my own position. For the past ten years, I have worked as a part-time consultant, helping institutions with their ePortfolio projects, teaching students how to use them, and why. I myself believe strongly that ePortfolios can be used successfully to document both initial and further professional development in a lifelong-learning society; I have built my own ePortfolio and maintain it today. But my experience at ePIC prompted me to question whether the benefits that both I and my conference peers assumed were actually borne out by students’ experience. That was the start of my personal journey towards this thesis topic - an investigation of the transfer of ePortfolio practice from the training place to the workplace.

This thesis is divided into six chapters. In chapter 1, I explain why I decided to focus my research on teachers’ ePortfolio practice, presenting the rationale underpinning my research and giving a brief overview of portfolio and ePortfolio practice, as well as defining some of the key terms and concepts I use throughout the thesis as a whole.

In chapter 2, I review the literature on ePortfolios and ePortfolio practice which points out gaps in methodology and models for my research, analysing and evaluating literature which covers:

1. ePortfolio practice developed in teacher training;
2. transfer of knowledge from the training place to the workplace, and specifically transfer of ePortfolio practice from teacher training to the workplace;
3. frameworks and models used to study ePortfolio practice.

At each level of the literature review, research questions are developed to address the methodological or epistemic gaps found.

In chapter 3, I present my methodological approach which is rooted in an 'idealist' position, based on subjectivism. I analyse ePortfolio practice not as an intrinsic and independent object but as the result of social interaction. My selection of the different methods to study the field (case studies), to collect information (semi-structured interviews) and to analyse the data (qualitative analysis) is based on this hypothesis. I also present the Engeström triangle which I use as the research framework for interpreting data results and the Consequential, Ecological, Relational, Deontological (CERD) framework which informed my ethical position. I explain the rationale behind my approach, the methods used to build the case studies, find the participants, access the field, and collect and analyse the data. I also consider, in a reflexive way, my ethical position as a teacher, ePortfolio expert, and researcher.

Chapter 4 describes how I built three case studies covering three different countries (Austria, France, and Switzerland).

Chapter 5 summarises my main findings, before engaging with an in-depth discussion of each point. During this discussion, I draw upon CHAT models in order to propose an explanation of my findings. Finally, I suggest the basis of a theory to foster the transfer of ePortfolio practice.

In the final chapter I present a summary of the whole research, reflecting on the possibility of generalising from its findings and the principles of the theory I have developed, evaluating strengths, weaknesses, opportunities and problems. I explain how my thesis contributes to knowledge about ePortfolios, teacher education and transfer of practice, and present the practical implications of my research for my personal and professional position as

a teacher, researcher and ePortfolio expert, and how it could also influence other practitioners. I conclude with an outline of further possible research in the same field and reflect on how proximal technologies and theoretical frameworks such as Open Badges, Blockchain, Bit-of-trust may impact upon the future of ePortfolio practice and should be investigated.

## Chapter One

### Introduction

---

Portfolios have a long history. Without going as far back as Brown (2002) does, to Plato's 'Know thyself', we can find indirect allusions to activities comparable to what we would now describe as portfolio practice from the late 1920s onwards. While a full account of the origins of portfolios and portfolio practice is beyond the scope of this thesis, the historical background to the topic is often absent from published literature, and an overview may help to understand the embedded paradigms in actual ePortfolio practice. A brief outline of how portfolios, and later ePortfolios, have been used in education during the past hundred years, and of some of the key ideas and issues emerging from and around this use, may be found in Appendix 1, which establishes a context and background against which my research may be placed.

A portfolio can be seen simultaneously as a method, a process and a document (Hyland and Kranzow, 2012; Mössenlechner, 2017). As a method, it can be a framework which enables people to assemble a portrait of themselves by collecting all the personal artefacts (for instance, material pieces, souvenirs or anecdotes) that are important to them. As a process, it encourages learners to reflect on their personal achievements, sustained by their formal and informal knowledge and skills, but also helps them to plan and set goals for their future learning. As a document, it presents the portfolio's owner with aspects of themselves which can be shared for recognition or assessment purposes. Thus, portfolios provide a way for people to gather, reflect, select and present evidence of their personal skills for assessment and validation (Rolheiser-Bennett et al., 2000), as well as to set goals.

#### 1.1 Portfolios and ePortfolios

In terms of comparing the two different types of portfolio, most research shows that neither the structure, the quality of reflection/evidences, or user satisfaction are changed by either medium (Driessen et al., 2007; Driessen, 2008). However, ePortfolios require new literacies and take more time to manage (Driessen et al., 2007, p. 1071). Some studies identify new and positive opportunities that digital technology offers in the educational use of portfolios. For Pérez Cavana (2012), the "digital version of portfolios enables a number of functions and affordance for the user and makes it possible to develop aspects [...] that could not have been envisaged in the paper version" (p. 19) while Barrett defines these new opportunities as being: better maintenance, a more efficient storage system, better accessibility, and an easy way to make multiple representations of students' achievements (Barrett, 2000). With Gibson, she

considers ePortfolios essentially as “a new kind of container [which] can be developed along two paths” (Gibson and Barrett, 2003, p. 1). The two paths are firstly, a generic tool, such as a word processor, html page builder, PDF files editor; and secondly, a customised system that involves programming a specific software which will run on web and database servers (Gibson and Barrett, 2003).

Research comparing electronic and paper-based versions of portfolios also suggests that ePortfolios offer users better achievement, by being more dynamic and versatile, and fostering a higher level of self-reflection and social interaction (Álvarez, 2012; Barrett, 2007). For Mason (2008) and Stefani et al. (2007), one of the most important features that the shift from paper-based to ePortfolio brings is the element of ‘social learning’ implicit in a technology which supports and facilitates group access and group work. This means that ePortfolios do not only encourage and develop self-reflection about personal achievements but can also develop other skills that paper-based portfolios are less efficient in supporting, such as social communication, peer assessment, and reflection on others’ work. This is corroborated in Summer et al. (2009) by students who recognise that ePortfolios, compared to paper-based portfolios, provide better ease of “sharing information with peers, tutors” (p. 78). With ePortfolios the process can depend not only on one person but can also be mediated by the group, offering a wider range of sources to reflect on an individual’s own achievements. My decision to study only ePortfolios is also shaped by their wider versatility. With ePortfolios it is easier to edit, adapt and update the content and above all to continue to reflect on it.

My understanding of ‘ePortfolio practices’ has been influenced by the way in which the apparent success of ePortfolios in HE has raised demand for ePortfolio management systems or ePortfolio platforms (e.g., Mahara, Sakai, Exabis, MyStuff). Such software is either developed in-house (MyStuff at the OU; Lorfolio at the University of Lorraine, France) or provided as commercial (PebblePad) or free and open-sourced applications (Mahara, Exabis). These platforms facilitate the integration of ePortfolio in the curriculum, and provide a homogeneous way to offer an institution’s members ePortfolio access. This fosters the development of standard practices, and eases the teaching and the supervision of ePortfolio activities.

However, one potential drawback to platforms such as these is the issue of whether or not graduates retain access to them when they leave the institution. While continuing to offer such access is increasingly seen as beneficial for the institution (see Section 1.2), its provision is still variable. Losing access to the ePortfolio platform potentially jeopardises the continuity of the

graduate's ePortfolio maintenance. In such a situation, it is possible that graduates who wish to continue using their ePortfolio in their workplace will have to cultivate new behaviours, such as the development of new habits, the use of new tools or an adaptation of both.

Consequently, I have decided to adopt a definition of 'ePortfolio practice', which includes the use of ePortfolio platforms but which is not limited to them. For the purposes of my research, I consider that 'ePortfolio practice' corresponds to a set of activities which combine to create a digital portfolio. These activities should include:

- 'collecting artefacts' of learning or skill attainment;
- 'arranging' and 'sorting' artefacts in logical groups with keywords or coding, to show how they document the construction of the owner's knowledge;
- 'reflecting' on groups of artefacts to turn them into elements of proof of the owner's personal achievements or level of skills attainment and to decide new goals;
- 'sharing' the latter with a group of stakeholders (e.g., supervisors, peers, coaches, evaluators) for comments and social construction of proof of the owner's personal achievement.

## **1.2 Transfer of ePortfolio practice**

Evidence exists that ePortfolios are introduced in HE not only for use during students' time at university, but also with a view to their continued use, beyond the institution (Heinrich et al., 2007; Koper and Tattersall, 2004; McAllister et al., 2008). This is noted, for example, by McAllister et al. (2008), in their inventory of ePortfolio use in Australia, which points out that some institutions encourage their students to continue to use their ePortfolios after graduation. Similarly, in Europe, Ravet (2005a) defends the idea of a 'portfolio for all', giving evidence of an individual's academic training and personal development throughout the whole course of their life.

Nevertheless, during the literature review, I came across little published research on how students continue to use ePortfolios after graduation and in the first years of their professional career, or on the issue of whether or not they would like to retain use of services provided alongside their training by the institution from which they graduated. In terms of the latter, there are a range of factors which have a bearing on whether universities are prepared to continue to

offer access to their ePortfolio platforms to their former students. Losing their ‘grip’ on graduates is considered a problem by universities because graduates are seen as their ambassadors in the outside world and they are also a source of income if they can be enrolled in postgraduate and further education courses, or enlisted as benefactors. To consolidate their link with graduates, universities favour them with discounts on books, or invite them for seminars and lectures, if they enrol in an alumni program. Similarly, there is evidence (e.g., IUT<sup>1</sup> of Troyes, University of Avignon, University of Toulouse) that institutions are starting to use ePortfolio services as a way of preserving a vital link with their alumni by offering to host graduates’ ePortfolios when they commence their professional careers. But before it can be turned into a source of revenue, an alumni ePortfolio service has a cost in terms of offering technical facilities to host potentially growing numbers of external ePortfolio accounts, and communicating the advantages of the service to the targeted public.

The impact of such factors on institutional access policies is further reflected in Jafari (2004), who suggests that ‘sticky’ ePortfolio services offered by institutions could generate financial benefits. Jafari finds a parallel between these services and a course management system (CMS) which provides courses online making “classroom instruction available to students who could not otherwise come to a physical campus, thereby spawning a newfound source of tuition income for sponsoring institutions” (p. 39). Heutte et al. (2012) also point out the strategic importance of keeping a grip on graduates with a ‘sticky’ ePortfolio service, noting that teachers and institutions have interests in and expectations of the continuity of ePortfolio practice in the workplace after graduate employees have started their professional career. However, these expectations are not always exclusively pragmatic, and may also be influenced by more altruistic notions of the benefits such practices can bring (Ravet, 2005b). The diversity of current institutional practice in this area shaped my adoption of the definition of ‘ePortfolio practice’ outlined in the previous section.

### **1.3 Beginning of teachers’ professional careers**

I decided to research teachers at the beginning of their careers for two main reasons: the observation of the fading of practice over time at the workplace, and the fact that development of ePortfolio practice is a relatively recent element in teacher training.

The fading of practice is neither a new phenomenon nor related only to teachers. It has been broadly observed and reported in studies about the retention of transferred skills from the

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<sup>1</sup> IUT: *Institut Universitaire et Technique* (University of Technology)

learning place to the workplace. For example, Machles (2003) suggests adopting different teaching styles for Safety, Health & Environmental professionals to influence employees' retention of safety rules and avoid their knowledge of the latter diminishing as time passes. Barrat et al. (2014) studied the intentions and the reality of newly qualified teachers (NQTs) continuing their ePortfolios during their probationary year. They observed that "quickly this enthusiasm [for continuing with the ePortfolio] was eroded as the demands of being an NQT were realised and dominated NQTs' time and thinking" (p. 115). Whatever the reasons, erosion and the fading away of what has been learnt appear to increase with time.

When I first began my research, it was difficult to find in-service teachers with years of experience who had been required to engage with ePortfolio practice during their initial teacher training. The majority of the published accounts of such projects were reporting upon the initial development stage of ePortfolio practice in the curriculum (e.g., Cheung et al., 2017; Haggerty and Thompson, 2017; Murray and Tuohy, 2017; Rowley and Dunbar-Hall, 2017). Most advanced experience of ePortfolio practice in teacher education drew upon a very small sample or concerned a maximum of two cohorts of teachers (Brooks, 2017; Oakley et al., 2014; Tang et al., 2016).

For these reasons, I found it was necessary to limit the search for participants to teachers at the beginning of their professional careers. However, there is no clear consensus as to what is meant by the 'beginning of someone's career'. In research studies where the concept is employed, few define what they mean specifically in the methodology or in the rationale. Among those who do, the period covered by the term ranges from the first six weeks to the first six months after someone has started a new job (Goddard and O'Brien, 2004); or simply the first six months (Knobloch and Whittington, 2003); for Sturges and Guest (2001) 'the beginning of a career' represents the first five years; or the first five to six years of a full-time job for Joerger and Bremer (2001).

In my study, I have chosen to focus on the first three years of teachers' employment. While this period is, broadly speaking, an average of the time periods specified in studies such as those cited above, my choice has been governed predominantly by practical concerns, particularly around data collection. As I will explain in Chapter 3, my recruitment of research subjects was partly reliant on my being able to contact them through their former teacher training institutions. Personal experience has shown me that such institutions increasingly lose contact with their graduates as time passes, often because graduates change their contact details without necessarily communicating these changes to the institution. Furthermore, while



graduates may initially continue to use an institutional e-mail address, these are generally revoked after a period of two to three years.

## 1.4 Research aims

My study focusses on teachers, but also investigates links between their actual practices and the main ePortfolio stakeholders' expectations. As Singh and Ritzhaupt (2006) argue, focussing on only one group of ePortfolio stakeholders (e.g. teachers) does not provide a complete overview. Consequently, I also wanted to hear from two other groups, whom I term 'educators' and 'supervisors'. By 'educators', I refer to the individuals who were in charge of teaching, facilitating, and assessing the teachers' ePortfolio practice during their teacher training. The members of this group were composed of professors, instructors, supervisors or external facilitators, who either introduced the trainee teachers to ePortfolio practice and/or requested that they show evidence of learning by using an ePortfolio. The second group – 'supervisors' – is composed of employers, managers or HR personnel, who are in charge of fostering the teachers' continuous training in their workplace, and/or assessing and controlling it, as well as ensuring that teaching standards in their institution are maintained. 'Supervisors' are important in teacher training because they are the gatekeepers in the hiring process for service entry teachers. The different groups and examples of their roles are summarised in Table 1-1-below.

Stakeholders	Examples
Teachers	Depending on the context: trainee teachers (as students), or teachers (as fully qualified professionals)
Educators	Professors, instructors, graduate assistants
Supervisors	Potential employers, managers, HR personnel

*Table 1-1: ePortfolio practice stakeholders in my study*

I will explain in more detail in Section 3.3.1 the reasons why I focused on these three main categories, basing my reflections on Singh and Ritzhaupt (2006)'s model, which identifies different types of stakeholders in interaction around ePortfolio practice.

I outline below my aims for each of these specific groups. My overall aims are to establish the reasons behind transfer of teachers' ePortfolio practice, identify which practices are transferred and why, and consequently suggest ways of fostering conditions for successful transfer of ePortfolio practice from the learning place to the workplace in situations where this is expected or required.

### *1.4.1 Teachers*

My aim is to investigate what teachers at the beginning of their professional careers do with the ePortfolio practice they have learnt during their initial teacher training. This involves:

- investigating the motivations that drive teachers to transfer and maintain ePortfolio practice after obtaining their teaching qualification: for example, whether they believe it will give them an advantage in their professional lives;
- determining the obstacles that can prevent this transfer: for instance, inability to access an ePortfolio tool which has been hosted by the institution where they were studying;
- studying the kind of ePortfolio practice teachers have transferred and which tools they used to do so: e.g., ePortfolio management software, social networks, blogs or a personal website;
- exploring how teachers' perceptions about ePortfolio practice may change after they move from their professional training into the workplace, and the extent to which their use of ePortfolios is similar to the way they used them during their training;
- investigating what impact their ePortfolio practice has on the development of their careers.

### *1.4.2 Educators*

I also investigate the perceptions of educators about how their trainee teachers will transfer ePortfolio practice learnt during their teacher training to the workplace. I therefore:

- investigate educators' expectations of seeing ePortfolio practice transferred in order to compare these expectations with what teachers actually do;
- investigate educators' vision of ePortfolio practice and the eventual adaptations teachers should anticipate in transferring this practice to the workplace;
- examine their representation of the usefulness of continuing with such practice for teachers;

- investigate how and what educators know about their own institution's policy on promoting ePortfolio practice during and after the training.

### 1.4.3 Supervisors

The last body to question is the supervisors, those who act as line managers of the teachers at work. This involves:

- investigating their perception of the usefulness for teachers of continuing ePortfolio practice in the workplace;
- investigating the value ePortfolio practices have for supervisors;
- investigating supervisors' expectations of teachers' ePortfolio practices;
- examining how teachers' professionalisation process takes place during the first three years of their professional career;

## 1.5 Definitions

I will here explain the rationale behind some of the key terms I will use in this study.

### 1.5.1 'Teachers'

Although the main subjects of my research – teachers – share and work within a common context (education), the terminology used to describe their roles and activities varies considerably across the different countries from which my subjects are drawn and within which my research took place. My research spans the period where they qualify and then enter service as practising teachers. During this time, their role changes from that of trainee to professional working within the education system. Investigating the transfer of ePortfolio practice from their teacher training into their workplace involves studying their ePortfolio practice both before and subsequently after graduation, and understanding both their roles: as former students and then as professional teachers. However, for simplicity and clarity's sake, and while still bearing this dual role in mind, I will generally refer to these subjects in this thesis as 'teachers'. Where it is necessary to specify the context more precisely, I will describe them as 'professional teachers' or, if the context relates to the time they were studying, 'trainee teachers'.

I have chosen this term, rather than describing participants as 'learners', or 'students', with or without a prefix, as literature in the field generally does – 'student-teachers' (Impedovo,

2016), ‘student teachers’ (van Wyk, 2017), ‘students’ (Marqués-Molíás et al., 2016) – because, as Biesta (2010) argues in his analysis of the "new language of learning" (p. 541), neither ‘learner’ nor ‘student’ are neutral terms<sup>2</sup>. Choosing either at the start of my research would, therefore, be inappropriate, as it could carry with it a pre-judged view of the participants’ relationship to knowledge acquisition – something which is unknown before entering the field. For this reason, I have preferred the term ‘trainee teachers’ to ‘learners’ or ‘students’. Moreover, the term ‘trainee teachers’ emphasises both the participants’ professional field, and the continuity between the individual’s identity in both contexts, their training and their professional practice. Rather than there being a static point at which they change from one status to another, in my view, they are engaged in a dynamic and ongoing process through which they build and develop their professional values and identity.

### 1.5.2 *‘Teacher training’*

I identify the period during which a person is trained to become a teacher as ‘teacher training’. Within this, I do not include further training that may occur after teachers have acquired their initial teaching degree. The period during which someone studies to become a teacher is often a grey area in published literature because there are so many different routes to joining the profession. In the UK, for example, options include obtaining a BA/BSc in a particular subject plus a post-graduate certificate of education (PGCE) or ‘on the job’ training which can give access to recognition by specific bodies such as the Higher Education Academy for those who teach at universities.

In my research, each study takes place in a different country (Switzerland, France, and Austria). The routes into teaching in each of these three countries are very different: the French system is the most complex, with – as in the UK – different routes for those who want to become a teacher; in Switzerland and in Austria, the path is more straightforward. What was important for me in selecting each study was that ePortfolio practice had to be embedded in the institutional curriculum and required for the trainee teachers. Whether the individual institutions reflected standard practice throughout the national or regional education system as a whole was of less significance, although it was clearly something to be considered in evaluating the findings from each study.

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<sup>2</sup>Biesta (2010) argues that the term ‘learner’ is embedded in a hierarchical conceptualisation of education, implying someone subordinate to a ‘master-explicator’, whereas ‘student’ is rooted in a more equal and ‘emancipatory’ view of education

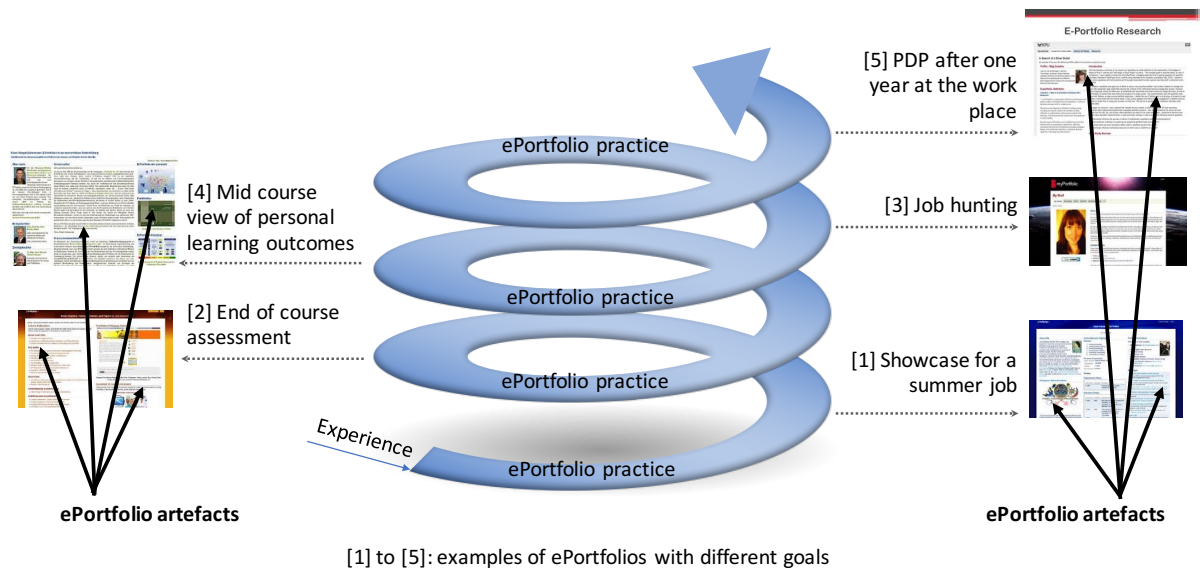
## 1.6 ePortfolios and ePortfolio practices in this study

Surprisingly, only a few authors consider an ePortfolio as a continuous journey from initial learning through to the end of a professional career and beyond. Usually ePortfolio studies are limited and focussed on using ePortfolios for a specific outcome, either for:

- **evaluation and assessment** (Chatzigavriil et al., 2015; Cordier et al., 2015; Galanis et al., 2016) ;
- preparing students for **employment** (Madden, 2003, 2015; Tubaishat, 2015);
- fostering students' **deep learning** or a **better learning approach** (Hartnell-Young et al., 2007; Huang et al., 2012; Yang et al., 2015); or
- scaffolding and documenting a **Personal** or **Continuous Development Plan** (Clegg et al., 2002; Gaitán, 2012; Stefani, 2005; Strivens, 2007).

Few authors consider and study the multi-faceted nature of an ePortfolio, or view it as a strategic tool that may support lifelong learning and self/professional development. Heinrich et al. (2007) suggest that ePortfolios should pass the barrier of students' graduation, to become an asset students take with them alongside their academic knowledge and skills and continue to enrich during their career. For them, this is an aspiration: the main issue to overcome is "to motivate students to invest time and effort into portfolios" (p. 661). Ravet (2005a, 2005b) also believes that ePortfolios are tools for life and is much more confident, in 2005, that this is the inevitable path of development for ePortfolios in the near future. Heutte et al. (2012) and Jan et al. (2012) state that ePortfolio practices and the tools required to engage with them evolve with time, contexts and needs. But while practices may change, the enrichment to which they contribute never stops. Nevertheless, in my view, ePortfolio studies miss an important point: an ePortfolio is an 'iterative process' in which the four steps I have described above enhance each other, at each iteration.

I will therefore consider all the practices that contribute to enriching and building an ePortfolio, which must include the gathering of information about someone's learning, their reflection on their learning, and the sharing of the whole with others to collect their reflections on the work which is always in progress.



*Figure 1-1: My model of ePortfolio practice and ePortfolios*

Figure 1-1 illustrates my model of ePortfolio and ePortfolio practice, showing the distinction I make between the two. ePortfolios (the ‘product’) are built using ePortfolio artefacts (texts, videos, photos, scans, sounds, etc.) derived from an individual’s experience, and ePortfolio practice (the ‘process’) turns these artefacts into proof of learning and acquisition of skills (formal and informal) through different activities (reflection, gathering and sorting artefacts, collaboration with peers and tutors, etc.). ePortfolios have specific goals (assessment, presentation of self, PDP, learning journal, etc.); when the goal is reached, the ePortfolio loses its purpose and can be discarded – there is no reason for its owner to continue to develop and maintain it. When an ePortfolio is destroyed, or abandoned by its owner, the artefacts it contained are kept and can be used to build other ePortfolios; moreover, because of their digital nature they can be used in different ePortfolios simultaneously. So, while the ePortfolios themselves have a limited lifespan, ePortfolio practice remains as a sum of the transversal skills used to build ePortfolios (some of which may also be used in other contexts, e.g., reflection) and which are reinforced by learners’ experience of developing these skills and building a collection of ePortfolios. My model emphasises the persistence of ePortfolio practice (the ‘process’) over the ePortfolios (the ‘product’), considering the former as the dynamic and the latter as the static part of engaging in ePortfolio projects.

## 1.7 Conclusion

This chapter has introduced the background to my thesis, presenting the aims that underpin my research regarding the transfer of ePortfolio practice from teacher education to the workplace. I have also defined each of the key concepts I work with in this thesis.

In the next chapter I will reflect on the published literature and identify the gaps on which I will build my research questions and my research framework.

## Chapter Two

### Literature review

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In this chapter I will present the literature review through which I developed my three research questions (RQ). I will comment on previous work on ePortfolios, transfer of knowledge and frameworks used for research on ePortfolio practice, drawing on them to establish my research on the gaps identified.

#### 2.1 Portfolios, ePortfolios and ePortfolio practice

In this section I will present how the literature defines ePortfolios and ePortfolio practice; how the definitions of both have evolved through time; and the purposes behind using ePortfolio and portfolios in education. A brief account of my approach to conducting the literature review may be found in Appendix 2.

##### 2.1.1 *The multiple faces of portfolios and ePortfolios*

The perception that the terms ‘portfolio’ and ‘ePortfolio’ are multi-faceted, and cover more than simply a single static object, has been central to recent scholarship. While early studies of ePortfolios – for instance, Bartlett and Sherry (2006) – begin to consider the idea that ePortfolios have more than one face, researchers commonly cite Barrett (2011), who first developed a framework around the tensions between ePortfolio’s existence as both a process and as a final product, as the originator of the idea that an ePortfolio has at least two faces:

e-portfolio and social networking are both process and product

- Process: a series of events (time and effort) to produce a result – From Old French proces (‘journey’)
- Product: the outcome/results of an activity/process – the ‘Destination’ (p. 6)

Much subsequent literature on ePortfolios has continued to evoke Barrett’s observation that ePortfolios are both process and product (e.g., Benckendorff and Zehrer, 2017; Chang et al., 2011, 2013; Mössenlechner, 2017), often developing it, or changing the terms. In the early stage of scholarly interest in paper-based and digital portfolios, balancing these two faces quickly became a focal point for researchers. Subsequently, as portfolios were disseminated in FE and HE, scholars developed more complex definitions of portfolios, rather than simplifying their existing definitions, to propose models that could be used in different portfolio projects and enable clearer comparison between them. This may be related to the relative plasticity – or



responsiveness, as we would term it nowadays – embedded in the concept of portfolios in general.

Matthews-DeNatale (2013), for instance, retains the dual vision but alters the terminology from ‘process’ and ‘product’ to ‘procedure’ and ‘tool’. Such relabelling may appear to refine the definition, but in my view, simply contributes further to the complexity of defining ePortfolios and ePortfolio practice. Consequently, the difficulty around defining an ePortfolio is that we can refer to it as:

1. a process, which includes different activities that form ePortfolio practice;
2. a final product, resulting from ePortfolio practice, to demonstrate someone’s achievements;
3. a tool, or a collection of tools that supports the creation of the final product and facilitates the process;
4. a place, where owners store their documents or evidence of achievements.

It is important for ePortfolio researchers to recognise these multiple facets in order to avoid confusion when accessing participants or commenting on the published literature. To illustrate this, Thibodaux et al. (2017) note that some of the students they interviewed about their ePortfolio practice were confused by the definition of what an ePortfolio is:

It was clear that some participants did not fully understand the difference between ePortfolios and the software because one respondent stated that she did not have an ePortfolio, but she did have a Wordpress site (p. 8).

Having a blog to reflect on practice or reflecting within an ePortfolio management system are activities which both have roots in the same ePortfolio practice, but ePortfolio users do not necessarily consider them as such.

Moreover, the uses to which portfolios and ePortfolios can be put also vary considerably. Baumgartner (2009), who describes more than twelve different types of ePortfolio, nevertheless narrows their use down to three main categories: ‘reflection portfolio’, ‘development portfolio’ and ‘presentation portfolio’ (p. 33). It is also possible to find less common uses of ePortfolio, such as a ‘resource portfolio’:

[a] collection of a range of digital media resources created by the learner, or found and curated by the learner from the Internet; [it is] focussed on an issue or learning area, with evaluations of the efficacy of the resources” (Bright, 2016, p. 33).

Just as there has been an evolution in the purpose of portfolios and ePortfolios as a product (see Appendix 1), changes have also occurred to portfolio and ePortfolio practice as a process, particularly since the shift from paper-based portfolios to ePortfolios. Central to the new practices embraced more easily with a digital portfolio are ‘collaboration’ and ‘sharing’, which can take place at every stage of the work on an ePortfolio. For McAllister and Hauville (2017) ‘collaboration’ and peer review are vital during ePortfolio development, enhancing “the social learning aspect which is central to effective learning opportunities” (p. 20). Carl and Strydom (2017) note that ePortfolios’ social and collaborative aspects are important, albeit underdeveloped, in teacher education and Thibodaux et al. (2017) claim that

ePortfolio learning has the potential to dynamically shift from knowledge-bearing repositories and assessment options to an interactive learning tool that promotes learner-centered principles, collaboration, and social constructivism (p. 9).

Such ‘collaboration’ became more efficient when digitisation hit the portfolio world: digital artefacts and ePortfolios could be shared over an Internet connection by clicking on a button and the people with whom the ePortfolio was shared could comment directly online.

Moreover, the skills developed through building an ePortfolio collaboratively, and sharing the process and final product with others, are often viewed as significant for employers seeking workers who can apply their learning to authentic situations (transfer of knowledge) to solve unscripted problems in collaboration with others (Rhodes, 2010). Therefore, if an ePortfolio’s purpose is to foster its owner’s employability, it has been argued that the process of learning, which includes reflection on the learning process, constructivist actions, and collaboration, should be prioritised during ePortfolio development (Jimoyiannis, 2013). Regarding the tools used to build ePortfolios, however, some ePortfolio management systems lack ‘collaboration’ facilities, as Delandshere and Petrosky (2010) and Thomas and Liu (2012) have shown. Based on my personal experience, this is not the case in popular ePortfolio systems such as PebblePad, Mahara, or Desire2Learn, but is often true with in-house development of ePortfolio management system as in the Lorfolio (State of Lorraine, France), or with Selfpad (University of Geneva) for example.

Between 2008 to 2012, the Joint Information Systems Committee (JISC) in the UK studied and collected resources on ePortfolios for HE and FE in a ‘toolbox’. This encompassed

guides, videos, and online resources suggesting good ePortfolio practice (JISC, 2008), or providing recommendations for ePortfolio implementation to institutions (JISC, 2006, 2012). JISC was also a prominent actor in the development of Leap2A, which allows the migration of ePortfolios from one ePortfolio management system to another. In its document on effective practice (JISC, 2008), the multi-faceted nature of ePortfolios is also noted as something that is “the focus of increasing attention” (p. 6), corroborating my impression that until 2006-2008, literature on portfolios in general emphasised the product more than the process – something which changed when authors began to consider, from 2008 until the present day, that the learning, i.e. the personal journey of the learner, is as important as the final product.

This is, for example, evident in Barrett (2007) when she presents ePortfolios as a tool for conveying personal digital stories, and fostering a deep-learning approach. She argues that ePortfolios belong to their owner, and are therefore not institutionally based; the key aspect of ePortfolios is students’ reflection on their learning. We can see that here, for Barrett, an ePortfolio as a product is what learners provide to the training institution to enable them to assess their learning and their skills, while ePortfolio as a process – what the learners have learnt personally and individually from the experience – remains private but nevertheless contributes to their self-development. Other authors, such as Siemens (2005, 2006) or Cummings (2006), argue that ePortfolios must emphasise the flow process of the learning. Barrett considered her two-faces of ePortfolios as equal but different states of the same reality; but Siemens goes further, viewing the process as more important than the final product. Cummings (2006), on the other hand, stresses the importance of self-reflection in the ePortfolio process.

We could undoubtedly find authors who identify as essential each different element that forms part of the definition of an ePortfolio. Nevertheless, present definitions of ePortfolios include the same broad generalities which could be summarised as: a tool and a process that fosters students’ deep-learning approach. Looking closer at the process, it generally involves five types of activity:

1. the gathering and the selection of artefacts as proof of learning or the ePortfolio owner’s self-attainments;
2. the owner’s reflections on how learning occurs or why the selected artefacts are considered as evidence or proof of the previous point;
3. the sharing of the two categories with peers and/or mentors (e.g. teachers, supervisors);

4. the comments of the peers and/or mentors which come at different stages to enrich the process;
5. the planning of learning and training goals which are continuously adapted to the needs and the progress of the learners.

In the articles I have reviewed, many use the term ‘ePortfolio practice’ without defining it. While it could be argued that all the actions taken by ePortfolio owners to build their ePortfolios can be considered as ePortfolio practices, my definition – as already outlined in Section 1.3 – focusses on a set of four practices that a learner puts together to produce an ePortfolio: collecting artefacts; arranging and sorting them; reflecting; and sharing. I use the term ‘ePortfolio practice’ when I refer to the ‘process’ of building ePortfolios, and ‘ePortfolio’ when I refer to the ‘product’. Like Cummings (2006), Siemens (2006), and Thibodeaux et al. (2017), I believe that the process is more important and more persistent than the product and I will therefore focus my study on the former. I also consider that one important aim of ePortfolio is “[to] creat[e] a compelling representation of self” (Jones and Leverenz, 2017) or to present a truthful picture of the self (Topkaya and Çelik, 2016; To, 2017).

### *2.1.2 ePortfolio practice in education*

My search for published literature on the use of ePortfolio in diverse disciplines shows that the two main subjects where ePortfolios have been used in education, from their early stages onwards, are nursing (e.g., Lúanaigh, 2012; Tzeng *et al.*, 2015; Haggerty and Thompson, 2017) and teacher training. For example, at an ISTE conference in 2003, Helen Barrett and Don Knezek presented a paper pointing out the advantages of using ePortfolios over standard assessment systems to assess trainee teachers’ skills: firstly, the fact that ePortfolios have multiple purposes (learning, assessment, employment) whereas the standard assessment system is only for assessment; secondly, ePortfolio is student-centred whereas the standard assessment system is institution-centered. Strudler and Wetzel (2005; 2006) investigate the diffusion of ePortfolio in teacher training, commenting on six ePortfolio projects in the USA. They point out the numerous variations in approaches to ePortfolio use within the different projects. Evans and Powell (2007) suggest that learning how to build ePortfolios during teacher training may help to develop a community of practice (CoP) during teachers professional career. While authors such as Knezek, Barrett and Powell focus on the product, Strudler and Wetzel (2005), Parsons and Stephenson (2005) are among the first to comment on the importance of the process – the ePortfolio practice – in education.

Although ePortfolios have been widely disseminated in teacher training from the late 2010's until today, ePortfolio practice in this context remains less studied than ePortfolios as a product. Carl and Strydom (2017) claim that:

[r]esults suggest that student teachers still require support in reflective writing; that the social and collaborative aspects of e-portfolio use within the given context is underdeveloped, and that the level of digital skills of students will impact the potential success of the integration of e-portfolios as reflective tools (Carl and Strydom, 2017, p. 1).

Moreover, ePortfolio practices are often simply listed as examples of what underpins the process of building an ePortfolio and are seldom the focus of the study. Scholars identify the importance of collaboration and reflection, but studies also ask what it means to collaborate when building an ePortfolio, and how reflective practices are different when using ePortfolios.

## 2.2 Transfer of knowledge

In this section I will outline past and present research on the transfer of knowledge from the learning place to the workplace.

### 2.2.1 *Theories of knowledge transfer*

Baldwin and Ford (1988) suggested that 'training transfer', as they refer to it, is conditioned by two main factors: "(1) generalization of material learned in training to the job context and (2) maintenance of the learning material over a period of time on the job" (p. 64). In their model, the work environment (which may be supportive and offer opportunities to use the skills learnt) and the trainee characteristics (abilities/motivation/personality) have direct and indirect impacts on the learning itself, and its transfer. The training design (e.g. its content, principles and sequence) has only an indirect impact, conditional upon the quality and retention of the learning. Holton (1996) builds on Baldwin and Ford's model, developing and refining it into a conceptual model which emphasises the significance of employers' and employee's motivations – often linked to performance – as well as the transfer design and climate.

In terms of application to my research, Holton (1996)'s model has some limitations. Firstly, it does not concern the transfer of initial training, but of further and professional training alongside the worker's career, which is not within the scope of my thesis. Secondly, Holton sees a training process as having three outcomes (learning, individual performance and organisational results) and considers 'learning' as only a means to achieve 'organisational results'. Nevertheless, in both models, motivation is the key point which influences the

transfer's success or failure and is something I drew upon in planning the interviews with teachers' supervisors and the teachers themselves by including questions that specifically address this issue.

However, in some studies, the trainee's motivation is outweighed as the driver for transfer by other factors. For example, in a study of good practice in training transfer, Burke and Hutchins (2008) surveyed 139 training professionals in a large city in the USA. Their findings show that for them the main transfer influences were the 'work environment' (reported by 49% of participants) and the 'design and development' of the training (46%) (p. 114). Participants claimed that stakeholders' support fostering such transfer is attributable to 'Trainers' (48%), 'Supervisors' (25%) and 'Trainees' (23%); 'Organisation' (3%) and 'Peers' (1%) – an interesting result, since in ePortfolio practice, we claim that sharing with peers and peers' participation are integral factors of a successful ePortfolio. Consequently, it is clear that studying the transfer of ePortfolio practice on the teacher's side alone is not enough. The latter is at one point of a triangle formed by themselves, their educators and their supervisors, in reference to Singh and Ritzhaupt's (2006) model described in more detail in Section 3.3.1

### *2.2.2 Transfer of ePortfolio practice*

Previous studies on learning transfer and ePortfolio establish how ePortfolio may contribute to the transfer of learning rather than how ePortfolio practice itself is transferred. For example, Brown (2015) and Cambridge (2008) studied the role of ePortfolios in transfer of learning between courses when ePortfolio practice was integrated into the coursework. Noting the lack of research on transferring ePortfolio practice beyond graduation and its use for documenting learners' lifelong learning, they suggested conducting research similar to their own on "lifelong and lifewide learning in other [USA] states and countries" (Cambridge, 2008 p. 1244). Drawing on Perkins and Salmon (1992)'s model of transfer of knowledge, Cummings et al. (2013) analysed the relationship between ePortfolio practice and the transfer of knowledge within, but not beyond, a particular programme.

Other studies focus on the broader use of ePortfolio, widening settings to include the workplace and the community. Chen and Light (2010) claim that "ePortfolios — as both process and product — can promote deep learning and knowledge transfer by fostering the student's ability to make connections between his or her learning experiences in a variety of classrooms, workplaces, and community settings." (p. 3), while Eynon et al. (2014), studying ePortfolio pedagogy, report that in Virginia Tech (USA), students use ePortfolio to state how

they “intend to transfer what they are learning to new complex situations beyond graduation” (p. 7).

In these studies, ePortfolio practice is only considered as a vehicle (product) for the method (process) that fosters the transfer of knowledge: transfer of ePortfolio practice *per se* is not considered. Moreover, they assume, as do similar studies, that ePortfolio practice may foster the transfer of knowledge without demonstrating that the transfer has really occurred. Another field of study in ePortfolio literature is the transfer of the ePortfolio as an ‘object’, particularly the difficulties in achieving this transfer, e.g. in Bennett et al. (2016) and Cheng et al. (2015).

Few articles, beyond Reznowski and McManus (2009), focus on transfer of ePortfolio practice itself. The latter also suggest that certain practices such as the “social networking aspect of the ePortfolios can transfer to real-world relationship building” (para. 19). But this does not indicate consideration of the transfer of this practice to another learning context, merely from a digital world to a real world which could be composed of the same people and in the same learning space – a change of place, whereas my study considers a change over time: transferring ePortfolio practice from a previous environment (teacher training institution) to the present (professional practice).

Investigating teachers’ practice in maintaining ePortfolios beyond graduation into their professional careers can therefore be considered as studying a form of knowledge transfer from the learning place to the workplace. As the transfer of ePortfolio practice is relatively unexplored so far, I will use theories on transfer of knowledge, transfer of training, or acceptance of transferring (e.g. TAM), which I presented at the beginning of this section instead.

### **2.3 Stakeholders’ perceptions of ePortfolio practice**

As noted in Chapter 1, my preliminary research into ePortfolios revealed a relative absence of studies focussing on stakeholders other than learners. Furthermore, as outlined in Section 1.2, institutions such as universities increasingly have interests in building bridges between the academic and the professional world. If ePortfolio is to be seen as an attractive tool for developing such connections, the institution must ensure that it responds to a market need. This need can be shaped by institutional policies, communication, by the way educators teach ePortfolio practices to students and how they themselves use ePortfolio in their own work. For Blom et al. (2014) and Hallam et al. (2008) it is important that academic ePortfolio stakeholders “have a broad understanding of the benefits and value that ePortfolios can bring to learning,

teaching, and career development processes” (Hallam et al., 2008, p. 15) to develop effective ePortfolio practice.

### *2.3.1 Teachers’ perceptions of ePortfolio practice*

Studies on how learners perceive the usefulness and the ease of use of ePortfolio present various and sometimes contradictory results. Mason and Rennie (2008), for instance, suggest most learners lose interest in maintaining and updating their ePortfolios after graduation, particularly when the apparatus was used primarily for assessment, whereas Casley and Day (2014) claim that 70% of learners with an ePortfolio said they would keep using it after the course.

Rowley et al. (2015) note mixed feelings among learners: “many students stated they would be unlikely to use their ePortfolio after graduation” but “about half of the alumni surveyed noted that their ePortfolio had been of some use to them in gaining employment” (p. 16). Learners’ perceptions about using ePortfolios for employment were previously explored by Woodley and Sims (2011), who observed that learners on second-year business courses also found it useful to have an ePortfolio to develop and showcase their employability but struggled with the process of building the ePortfolio itself.

More recently, Krishnan and Yunus (2017), studying how pre-service Malaysian trainee teachers improved their reflective practice with ePortfolio, note that the majority of their participants thought that writing a reflective journal in their ePortfolio made them better teachers, but also that they would not be in a position to continue with their ePortfolios at the workplace because their training institution did not provide access to their ePortfolios after they had left it. A close reading of the article shows that the authors have focused their study on analysing evidence of reflective practice: the role of the ePortfolio is simply as the vehicle, suggesting there may sometimes be a bias in authors’ conclusions about learners’ perceptions of ePortfolios when ePortfolios are not themselves the focus of the study.

Mixed feelings are a general finding in much research on ePortfolios. Oakley et al. (2014), for example, report how ePortfolios were perceived by trainee teachers one year after their introduction in the curriculum for pre-service teachers. They claim that “participants found it difficult to grasp the idea that the e-portfolios had multiple purposes and that these would change over time” (p. 47), and also that technology was for some learners a barrier to fully engaging with ePortfolio practice. They also comment that:



Pre-service teachers will not put in a lot of effort if they do not perceive that lecturers place value on the e-portfolios, have the technological and pedagogical competence to engage with them, and are prepared to spend time monitoring and guiding students' reflective processes (p. 47).

Their findings also indicate a lack of collaboration among trainee teachers and their peers, as well as between the former and their supervisors, and a lack of staff engagement (limited enthusiasm, and insufficient feedback given to the trainee teachers). They conclude that trainee teachers' perceived usefulness of ePortfolio practice is intertwined with staff's own perceptions on the matter. Nevertheless, in the project they studied, "pre-service teachers reported that they saw the value of reflection and the use of a guiding structure [provided by ePortfolios]" (p. 46). These findings are common throughout the majority of ePortfolio research on learners' perceptions of usefulness and ease of use (e.g., Ng et al., 2013; Schlag and Imhof, 2017) or on learners' broader perceptions (Blom and Hitchcock, 2017; Mobarhan et al., 2015), and as Cheng et al. (2015) or Hsieh et al. (2015) suggest, all these perceptions impact on learners' transfer of ePortfolio practice. Perceptions may evolve. Schlag and Imhof (2017) note that learners' perception of ePortfolio ease of use increases as the experience of using ePortfolio grows. But generalisation from such findings is difficult, technically because their study is based solely on one project run for only 14 weeks with a small group of participants ( $n=32$ ), and, moreover, perception is a personal matter that cannot be reliably generalised. All articles which study perceptions of the ease of using ePortfolios focus on the ease of using the technology supporting ePortfolio practice, rather than on ePortfolio practice itself, concentrating on the building of the 'product' rather than the acquisition of the 'process'.

### *2.3.2 Educators' perceptions of ePortfolio practice*

The perceptions of trainee teachers' practices by educators during their study are also mixed. At one extreme Deneem et al. (2017) point out that the benefits of ePortfolios for teaching, learning, assessing and for the curricula are "presumed" in previous literature. Their study about the conceptions of 360 students from different faculties at the University of Hong Kong shows that positive attitudes toward ePortfolio use led to positive views of ePortfolios, which seems over simple: merely having a positive attitude to new challenges is certainly not enough to overcome them successfully. Explaining what a positive attitude consists of so that learners could work towards it would be useful, but Deneem et al. (2017) do not develop this with further detail.

Moreover, research often observes a lack of this 'positive attitude', showing instead that students fail to engage with ePortfolios and take ownership of them (Shepherd and Hannafin,

2009). This lack of interest may “reflect tutor and student confusion about their roles and the purpose of the ePortfolio in the learning environment” (Peacock and Murray, 2009, p. 2). The impact of this confusion is reflected in studies which focus on how the sense students can make of a task impacts on the way they will engage with it (Álvarez, 2012; Baturay and Daloğlu, 2010). My own experience with students supports this point, especially when the task is seen as being time consuming, and the time spent on maintaining ePortfolios is seen as an issue by both the students (Chau, 2007; Johnson and DiBiase, 2004) and the educators (Kocoglu, 2008; Robinson, 1993).

In order to introduce ePortfolios successfully, and encourage trainee teachers to sustain ePortfolio practice at the workplace, institutions often promote ePortfolio as a process and a tool that fosters employability (Michaud, 2010). A general definition of ‘employability’ could be “a set of achievements – skills, understandings and personal attributes – that make graduates more likely to gain employment and be successful in their chosen occupations, which benefits themselves, the workforce, the community and the economy” (Yorke and Knight, 2006, p. 7).

In much research on ePortfolios in education, the notion of ‘employability’ is central (Kernan, 2010; Patent, 2007); as it is also central in other fields (see Section 2.3.1). In vocational teaching, ePortfolios generally serve three purposes: professional development, summative and formative assessment, and employment (Hartnell-Young and Morriss, 1999), whereas in higher education the scope of using ePortfolios can be wider (Baumgartner, 2009) and not necessarily embedded around the idea that ePortfolios help their owners apply for jobs. But in many countries higher education is a market (Slaughter and Rhoades, 2004) where learners are the customers who search for the best return for their fees. Improving their employability is part of this payoff. My point of view is that employability can be seen as one of the underpinnings in institution-employer relationships. In the educational sector schools wish to hire well-trained teachers, who are ready to work immediately: when competition in teacher training exists, institutions have an economic interest in fostering their trainee teachers’ employability.

In this thesis, I am extending the common definition of ‘employability’ as being “all individual possibilities to be successful in a diversity of jobs in a given labour market situation” (Sanders and de Grip, 2004, p. 75) to a process that pertains during the whole of a professional career:

Employability means the development of skills and adaptable workforces in which all those capable of work are encouraged to develop the skills, knowledge, technology and adaptability to enable them to enter and remain in employment throughout their working lives. (HM Treasury, 1997, p. 1)

The justification for this expansion of the definition is that, in my experience and as Johnston and Packer (1987) suggest in relation to workers in general, nowadays a teacher's career is more dynamic than formerly, and frequent adaptation to regular changes in education (e.g., new didactic methods, educational reforms, introduction of new technology) is more likely for the generation of teachers I propose to study than it has been for previous ones.

Most of the articles considering the relationship between ePortfolios and employability claim that ePortfolios develop a better employability but do not clarify or support this with direct, empirical evidence. Moreover there is a tension between the use of ePortfolios and employability as Painter and Wetzel (2005) suggest that employers are not ready to accept ePortfolios for pre-employment interviews.

Besides employability, I noted previously that ePortfolio researchers often find that students are engaged by ePortfolios when they support their reflective position as a learner, something reported in studies of both learners and educators. However, educators report that learners quickly lose interest in ePortfolios for recording their reflective practice, if there is no challenge and if they consider them as useless. Teoh (2011) thinks the age of learners has an impact on whether they engage with ePortfolio or not, arguing that young university students are rapidly bored if they think that maintaining an ePortfolio is dull, without further addressing the age factor or explaining the students' boredom. Others suggest that educators believe that the lack of technology skills among learners is another explanation of their lack of engagement in ePortfolio practice (Oakley et al., 2014).

Finally, there is occasional evidence that educators consider ePortfolios a method and a tool that go beyond the needs of the institution. In Posey et al. (2015) educators explain why they chose to implement a digital version of portfolios over paper-based: one reason is that ePortfolios offer the "ability for alumni to keep and continue to curate their ePortfolios after graduation" (p. 82). Such testimony implies that although the literature review suggests ambivalence among educators' expectations that learners will engage with ePortfolio practice, some believe that ePortfolios can be a lifelong vehicle for documenting the learner's outcomes during and after formal education. Sometimes, there is the expectation that learners will turn their learning ePortfolios into career ePortfolios after they graduate (Liu and Burt, 2015) or

extend current institutional ePortfolio projects to “allow students to keep their ePortfolio after graduation” (Tubaishat, 2015, p. 200).

### *2.3.3 Supervisors’ perceptions of ePortfolio practice*

Professional ePortfolios are seen as having many potential roles to play: for example, as a way of developing good practice in the workplace (Stefani, 2005), or as a tool for personal development planning (PDP) (Juwah et al., 2001) and professional development (Stefani and Diener, 2005). They can be a place to discuss and manage the ‘persistence of knowledge transmission’, horizontally distributed during work time, leisure or further training (Varga and Carron, 2009), together with the ‘persistence of access’ to the places of knowledge and its co-construction in different spaces: learning places, training places, and also training at work (Do and Bouzeghoub, 2008).

The studies I encountered were predominantly conceptual, and while they often considered how ePortfolio practices benefit ePortfolio owners, they did not investigate to what extent employers consider ePortfolio practice a part of professional practice, or how employees do or do not foster such practices. Nor did they analyse whether employers expected graduate employees to continue with the ePortfolios they have built before they were employed. An investigation of this could be connected with and inform educators’ expectations and their institutions’ ePortfolio policies.

A study by the City University of Hong Kong, which encourages students to use ePortfolios during their learning, provides advice based on employers’ comments. On their website (2011a, 2011b) they claim that 83% of the employers they have interviewed would be likely or more likely to view an applicant’s ePortfolio if a link was provided, and 55.3% of them especially during the initial screening of the candidates. They also report employers’ criticisms of ePortfolios which they see as time consuming to read, and perceive as being difficult to adapt by active job-seekers who are applying for different jobs simultaneously, and therefore require their ePortfolios to address different employment criteria. Although such information may be useful for students, it is of limited use for academic purposes, as the website does not give references or identify the methodological framework that underpinned City University’s study. But to date, my literature review has not produced any other quantitative studies on the same subject.

The interest of supervisors in ePortfolios is also reported by Brown (2015) who is referring to a survey conducted in 2013 by the Association of American Colleges and

Universities (AACU), which states that 83% of the employers ( $n=318$ ) are interested in accessing and looking at candidates' ePortfolios where they exist. This has to be balanced by other studies that show the opposite. For example, Hsieh et al (2015) surveyed students and educators from a Taiwanese University, interviewing some, besides sending an email survey to 59 potential corporate recruiters who were already in a relationship with the institution being studied. Their findings show that at the beginning of the research the majority of recruiters (84.7%) were not aware of what an ePortfolio is. After being asked to assess actual student ePortfolios, for the sake of the research, 47.5% of the surveyed recruiters had a positive attitude about using ePortfolios as a recruitment tool and 52.5% were ready to spend some time (maximum 5 minutes) browsing a candidate's ePortfolio. One of the reasons that Hsieh et al. (2015) suggest to explain the lack of knowledge about ePortfolios and the existence of ePortfolio practice developed at the university they studied is that the recruiters (84.7%) had never been informed about it by the institution.

These results from the literature review are coherent with my own and personal observations as an ePortfolio consultant regarding learners', educators' and supervisors' perceptions of ePortfolios and ePortfolio practice. Hsieh et al. (2015) researched the three groups of stakeholders, as I do in this thesis: although my methodological framework is different, I will return to their results to compare my own findings to theirs in Chapter 5.

## **2.4 Frameworks in ePortfolio practice research**

In the process of carrying out the literature review, I noticed the lack of theoretical frameworks in most of the papers I read. Fiedler et al. had already observed this, reporting that "[a]n important weakness in the existing portfolio literature is that it is largely unconnected to the broader theoretical framework" (Fiedler et al., 2009, p. 101).

One question then is: has this changed since 2009? To answer it, I selected thirty articles at random with the keywords 'ePortfolio' and 'ePortfolio practice' in Google Scholar, restricting my research to 2014 and 2015.

Of those articles, twenty-four lacked theoretical frameworks: methods are usually described briefly or broadly, as in Cordier et al. (2015), but the methodological framework itself is missing or appears only implicitly. For example, in Hoekstra and Crocker (2015) the method of collecting data is presented but there is no information on how the data has been analysed to "determine adoption, and faculty perception of the impact of the ePortfolio approach", nor are the epistemological or ontological positions of the authors mentioned. Interestingly, Hoekstra

and Crocker (2015)'s literature review quotes from various authors such as Bound (2011), Engeström (2014), and Lave and Wenger (1991), each of whom has a different methodological approach: Bound (2011) focusses on the 'Workplace Learning' framework, while Engeström (2014)'s article is related to 'Cultural-Historical Activity Theory' (CHAT), and Lave and Wenger (1991) on the 'Participation' or 'Legitimate Peripheral Participation' (LPP) framework. It is also unclear why they quote Engeström here, together with Bound (2011) and Lave and Wenger (1991): he is mentioned once but not referred to subsequently in the rest of the article.

In the remaining six articles, methodological frameworks are clearly described: the two most frequently used are CHAT (Abidin et al., 2014; Bose and Pakala, 2014; Buchem et al., 2014) and Grounded Theory (GT) (Ralston, 2015; Springfield et al., 2015; Sánchez, 2014). In addition, more specific models, such as the 'Portfolio Development and Learning Theories' (PDLT) model in Ralston (2015), are mentioned.

My own reflection on this literature review concludes that transfer of ePortfolio practice from the learning place, and specifically from teacher training, to the workplace has not been studied and there is still a lack of research in this field. Moreover, studies of ePortfolio often lack a strong methodological framework.

## **2.5 Suppositions and research questions**

In this section I formulate four suppositions (identified as Suppositions A-D) underpinning my research related to what emerged from my literature review, before outlining my study's three research questions, my overall aim being to provide recommendations to foster the transfer and continuation of use of ePortfolio practice for in-service teachers.

### *2.5.1 Suppositions*

A crucial question to investigate about ePortfolio practices is whether or not they are actually transferrable. One can argue that ePortfolio practice may vary according to the context and may be different in primary, secondary, tertiary education and subsequently when the learner moves from the learning place to the workplace. As already noted in Section 2.2.2, the transfer of knowledge is something that is often emphasised in theories of learning. Authors such as Lewis (2016) claim that ePortfolio practice and pedagogies can be transferred to all contexts from early childhood through higher education and beyond. In this study, therefore, my first supposition (Supposition A) is that taught ePortfolio practices *can* be transferred and

used in different contexts, including the shift from education to the workplace. Secondly (Supposition B), in line with my ePortfolio model (Figure 1-1), I suppose that ePortfolio practice (the dynamic process) has a better chance of being transferred from teacher education to the workplace, compared to ePortfolios (a static product). Referring to the ePortfolio Stakeholder Interaction model (Singh and Ritzhaupt, 2006), my third supposition (Supposition C) is that focussing my research only on teachers is not enough to understand the variables that encourage or limit the transfer of ePortfolio practice to the workplace, and that educators' and supervisors' perceptions of teachers' ePortfolio practice, together with their behaviour (for example having or not having a personal ePortfolio), may impact upon the latter.

Finally, the different (implicit or explicit) methodological frameworks identified in the literature review can be divided into two groups: quantitative and qualitative approaches. Both approaches are used to determine learners' views and preconceptions – such as their perceptions of ePortfolio practices' usefulness and ease of use, as well as their personal motivations. These are 'internal variables' (e.g. perceived usefulness and perceived ease of use in TAM) which influence learners' decisions to engage with and transfer ePortfolio practices. Studies using qualitative approaches also analyse whether and how the interaction of learners with their peers, their tutors and their supervisors, impacts upon their personal decision to engage with ePortfolio practice. These are 'external variables' because the decision is influenced by others. My fourth and final supposition (Supposition D) is, then, that there are two types of variables that drive learners' decisions to transfer ePortfolio practices, and these have to be studied using different methodological frameworks.

These suppositions underpin the development of my research questions which I will now outline.

### *2.5.2 Research Question 1: What ePortfolio practices are transferred from teacher training to the workplace?*

I came across little published research on how graduates continue to use ePortfolios in the first years of their professional careers (Ravet, 2008; Gauthier and Jézégou, 2009), and on the issue of whether or not they would like to retain use of services provided alongside their training by the institution from which they graduated. In the literature review of their paper, Cheng et al. (2015) came to the same conclusion. This gap is, therefore, the focus of my first research question [RQ-1]: What ePortfolio practices are transferred from teacher training to the workplace?

This is a question which first requires demonstrating that ePortfolio practice existed among the participants prior to entering their professional life as teachers, before collecting information about their current ePortfolio practice (if they have it) at the workplace and comparing this data to evidences (artefacts or personal ePortfolios) to validate participants' perceptions of their ePortfolio practice. This is also linked to Suppositions A and B which presuppose that transfer exists, and that there would be more likelihood of finding traces of transfer of ePortfolio practices (process) than of ePortfolios (final product).

Two subquestions are needed to explain the reasons for the presence or absence of transfer and the quality of the transfer of each practice:

- RQ-1.1 What is the nature of teachers' perceived usefulness of this transfer?

To respond to this subquestion I will consider the ontological dependence between the reality (transfer or lack of transfer of ePortfolio practice) and the perceptions of or beliefs about ePortfolio practice among teachers but also among other stakeholders:

- *Educators' behaviours and perceptions have an impact on the transfer of ePortfolio practice from teacher training to the workplace.* Educators' behaviours include ways of teaching or introducing ePortfolios to trainee teachers, how they use trainees' ePortfolios for assessment, expectations covering their perception of ePortfolio practice and how they may be useful to teachers at the work place.
- *Supervisors' behaviours and perceptions have an impact on the transfer and the maintaining of ePortfolio practice by teachers.* This encompasses supervisors' knowledge of ePortfolio practice, their interest in teachers' career development, in recording teachers' achievements, and maintaining quality standards of teaching.

This is linked with Suppositions C and D, which concern the drivers for personal decisions to transfer which may be formed by internal variables (teachers' own perceptions) but also external variables including educators and supervisors.

- RQ-1.2 What is the nature of teachers' perceived ease of use of ePortfolios?

Research that seeks to explain why learners engage or cease to engage with ePortfolio practice, or with technology in general, often uses a methodological framework that studies the perceived usefulness and the perceived ease of use of that technology. It therefore seems reasonable to follow the same pattern and determine whether these perceptions impact upon



teachers' intentions of using and transferring their ePortfolio practice, in line with Supposition D, about the importance of internal and external variables for change, focussing here on internal issues.

### *2.5.3 Research Question 2: What are educators' and supervisors' perceptions of teachers' ePortfolio practice?*

Investigating supervisors' sense of the value ePortfolios have for them also explores how they expect that teachers will continue with previous ePortfolio practices or adapt them to the new context of the workplace. Moreover, the success of an institution's ePortfolio project and its extension to teachers' professional careers depends on the needs and expectations of the job market in the education sector and the supervisors. However, my literature review produced little in the way of specific studies of the relationship between these different stakeholder groups.

Consequently, it makes sense to question educational institutions' representations and expectations of the job market, and compare them to the reality of a teacher's professional life. By comparing teachers' needs and perceptions *a posteriori* with their educators' perceptions about how teachers will use ePortfolios both during and subsequent to their teacher training, I seek to give a more empirically grounded sense of the relationship between educators' and supervisors' expectations and in-service teachers' actual practices.

This embraces simultaneously educators', and supervisors' expectations of seeing – or not seeing – transfer and development of ePortfolio practice at the beginning of teachers' professional careers, and also the apparatus they may develop to foster and support this. The latter may be studied with the help of different frameworks developed for ePortfolio research or adapted from other proximal or more general fields.

### *2.5.4 Research Question 3: What external factors influence the transfer of ePortfolio practice?*

As already stated, I suppose that teachers' decisions about transferring their ePortfolio practice to the work place are influenced not just by the internal variables, which are addressed by RQ-1.1 and RQ-1.2, but also by external variables (as suggested in Supposition D) which are the subject of RQ-3. Because my research focusses on those who have already begun working as teachers, I am able to examine their present ePortfolio practice but also to discuss the origin of these practices, from when they were trainee teachers. Therefore, I have divided

RQ-3 into two sub-questions, each related to the two different settings: the period during which participants were trainee teachers, and the period they have spent as professional teachers in their institution:

- RQ-3.1 How do the teachers' training environments influence the transfer of ePortfolio practice?
- RQ-3.2 How do the teachers' professional environments influence the transfer and the continuation of ePortfolio practice?

It is important to distinguish between these settings because the aims of developing an ePortfolio are different in teachers' training than during their professional careers. The literature review shows that during teacher training, ePortfolios are used, for example, to document and assess trainee teachers' learning, or showcase their skills for employment whereas ePortfolios at the workplace are often employed for documenting continuous development planning / personal development planning (CDP/PDP) and fixing professional training goals.

Together, the three RQs help to fill the gap revealed by the review of published literature, when it comes to studies of transfer and continuation of ePortfolio practice. The RQs also seek to study not only what practices are transferred but also why and whether there are common reasons that limit or facilitate the transfer and the continuation of such practice. The data collection collects information on 'what' is transferred, and 'how', in the light of my supposition that 'how' is determined by internal and external variables.

In the next chapter I will present my methodology and how I have built my research framework. I will also reflect on some ethical considerations regarding my research.

## Chapter Three

### Methodology

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My research has been developed with a theoretical framework inspired by Cultural-Historical Activity Theory (CHAT) – often simply shortened to Activity Theory (AT) – and other work on technology acceptance, particularly the Technology Acceptance Model (TAM). Giving my thesis a strong foundation in these theories may help to develop new approaches in the analysis of ePortfolio practices or at least to consolidate the few theoretical approaches that have already been explored in connection with this topic. In my search for a methodology, I drew upon accounts of social research methodology (Denscombe, 2010; Firebaugh, 2008; Grix, 2010; Hammersley and Atkinson, 2007; May, 2011; Thomas, 2007) as well as informal discussions with senior researchers at the Universities of Lausanne and Geneva.

Marton and Säljö (1976), and Laurillard (1979, 1994) considered that the context of learning is more important than the learning-style. I interpret this to mean that the way you learn about something already shapes the sense you give to the knowledge. Here I chose to embrace reflection on methodology and research frameworks from a holistic approach, which is the one I use when I have to embark on a path of which I have no prior experience. After initial discussions and readings, I sought to categorise the concepts characterising the main theme into five areas: schools of thought, methodologies, methods, frameworks, and theories. Then I summarised and drew a conceptual map to show my interpretation of my notes on how concepts, authors, quotations, and currents of thinking evolve and interact in a holistic representation (Appendix 3), before developing my own conceptual framework.

### 3.1 Conceptual frameworks as tools for research

A conceptual framework is a set of tools for analysing different situations in different contexts or “the way ideas are organised to achieve a research project’s purpose” (Shields and Rangarajan, 2013, p. 24). Conceptual frameworks help capture information about the world and are used to make categorisations, and contextual claims; and to organise information and generate ideas. Microeconomics, for example, uses the conceptual framework of ‘demand’ and ‘supply’ to express how in different contexts (e.g., free market, oligopoly, monopoly) the prices of goods are set by the market.

Shields and Tajalli (2006) identify five types of conceptual framework linked with different research purposes:

Working hypothesis → Exploration or Exploratory research

Descriptive Categories → Description or Descriptive research

Practical ideal type → Gauging

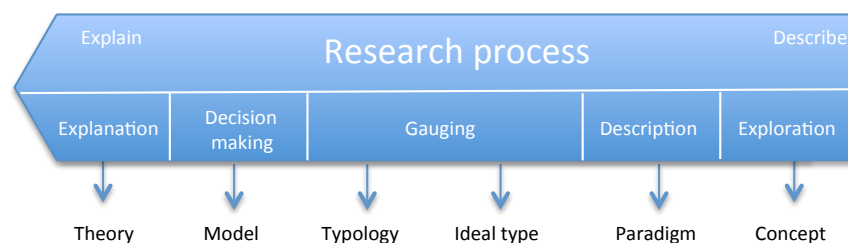
Models of operations research → Decision making

Formal hypothesis → Explanation and Prediction

Grix (2010), on the other hand, suggests seeing the methodological framework as a “continuum of research tools that have as their intention ‘explaining’ social phenomena at one end and ‘describing’ social phenomena at the other” (p. 19). Grix’s and Shields and Rangarajan’s models are conceptually similar: Grix (2010) suggests a scale of complexity from ‘concepts’ (the least complex tool) to ‘theory’ (the most complex), while Shields and Rangarajan (2013) suggest, but do not impose, a purpose for each tool. They also suggest that the taxonomy follows the process of a research project:

we pair exploratory research with a framework called working hypotheses. To take into account the need of flexibility characterised by exploratory research [...] we use provisional or working hypotheses, which were meant to carry early inquiry forward (p. 8).

I consider both approaches to be complementary, as my summative diagram combining them (Figure 3-1) indicates, and thus appropriate for my study, as my work in this research is twofold. On the one hand, RQ-1 seeks to establish which of teachers’ ePortfolio practices are transferred (with Supposition A that they are) from their teacher training to the workplace: Shields and Tajalli (2006) would locate this within a ‘descriptive categories’ framework. On the other hand, Suppositions C and D which underpin my second and third research questions are that ePortfolio stakeholders’ behaviour and the environment have an impact on this transfer (or on its absence); this would fall within the ‘working hypothesis’ framework. I will now briefly outline the different tools that helped me to develop my own model.



*Figure 3-1: Combination of Grix (2010) and Shields (2013)'s models of conceptual frameworks*

### *3.1.1 Exploration phase*

In this phase of research, researchers should examine the concepts embedded in the field they want to study. A concept summarises, in one or few words, whole empirical phenomena: where assumptions and perceptions for phenomena are stable, so are the underpinning concepts. But concepts may carry certain perceptions and assumptions about the phenomena and, as Grix (2010) observes, are often context-dependent and can therefore be wrongly used. For example, the concept of a ‘tablet’ in the Middle Ages is of loose pieces of paper, clipped together, on which personal information can be written and thus remembered. Today this concept means a flat, portable electronic device, on which we can read books, write email, and manage our calendar, as well as noting personal information to be remembered.

During the exploration phase of my research, I reflected on the concepts underpinning ePortfolio practice which I had identified in the literature review. This helped me to understand the richness of the concepts described in ePortfolio practice research, but also to observe the absence of a clear definition of what ePortfolio practice actually is, and to develop my own definition in response (see Section 1.1). The exploration phase, with its focus and reflection on concepts, was important throughout my research. I regularly returned to it, to check the validity of my findings and my discussion of them when approaching the two final phases of the model (‘decision making’ and ‘explanation’). Interestingly, during data collection, I observed that it was often necessary to define the concepts around ePortfolio practice with participants – especially supervisors, who were not always aware of what ePortfolios are or what the teachers they supervise could do with them. Consequently, I decided to begin each data collection by giving participants their own exploration phase, a time when they could explain their vision of concepts and paradigms around their perceptions of ePortfolio practice in general and in their own experience.

### *3.1.2 Description phase*

In this phase, researchers refine and develop the general concepts they have established into specific paradigms – that is, the ideas or conventions current in the field of studies. Kuhn (1962) argues that paradigms are flexible, and if and when they do not correspond to a new reality, this creates a ‘paradigm shift’, although such shifts are sometimes delayed or refused by the practitioners, for different reasons. For instance, Lakatos (1976) suggests that researchers work within ‘research programmes’, which place research problems in an order of fixed priorities and consequently force the research paradigms to be fixed within the programme’s

timetable. For Latour and Woolgar (1986), the problem reflects researchers' reluctance to reconsider all their previous research when a central paradigm in their field changes. Consequently, researchers must be aware of the main worldviews or paradigms that dominate their field of study, while recognising that these will guide them in choosing the methods and ontological and methodological positions on which the paradigms are based (Grix, 2010). This phase was for me the time of a dialectic conversation with myself about the field of my research and also to focus on the description of proof and evidence from my personal experience and from the literature review. It also led me to take into account the fact that in some institutions, ePortfolios and paper-based portfolios are in use simultaneously, and may thus be the site of paradigmatic tensions between the two different technologies.

### *3.1.3 Gauging phase*

This phase constructs on the previous paradigmatic phase an ideal-type of the study's object and gauges it against observations of the object in reality, deriving different types in the process.

The ideal-type is a sociological concept coined by Max Weber (1965). It corresponds to an abstract type, or category, which helps explain and theorise empirical phenomena. For Weber, all characteristics of the types need not match the ones in the empirical phenomena exactly. Ideal-types are used to build a model of the social phenomenon strongly linked to the aims of this model (Weber, 1965). I agree with Weber (1965) that the shape of the ideal type is defined by a process and is valid as long as the essential 'paradigms' do not change. There are also similarities between Weber's 'ideal-type' and Rosch's idea of a 'central exemplar' (Rosch, 1999).

Typologies are a way to classify empirical phenomena and arrange them according to their intrinsic features. Grix (2010) considers typologies as the initial process for building theories, as do Christensen (2006) and Peters (1998). For Shields and Tajalli (2006), this is the moment in the research project when the researchers are comparing the data they have collected and developed to the theoretical framework in which they have framed their research, before deciding what is relevant and what is not.

The gauging phase was a cornerstone during my research. For Shields and Tajalli (2006) researchers compare data to an already existing theoretical framework, but in my research, it was during the gauging phase that my theoretical framework was shaped, developed and adjusted. During the analysis of my data, it became essential to redefine ePortfolio practice and

what activities or artefacts can reveal its existence. The paradigms about developing ePortfolio practice for trainee teachers are not the same when they become professional teachers. Therefore, the objectivity of their ePortfolio practice changed. This led me to consider recognising the existence of ePortfolio practice on its own terms, regardless of the context in which it exists, and independently of the different ePortfolio management systems.

#### *3.1.4 Decision making phase*

Establishing clear differences between the tools described here is not always straightforward, but Grix (2010) suggests that the researcher “should avoid conflating the term ‘model’ with ‘research paradigm or tradition’ and ‘research perspective’” (p. 21). A model is a working abstract of reality through which researchers can test hypotheses and make decisions. It does not encompass the holistic complexity of the phenomena it represents but is close enough to be considered a valid representation of the truth. For example, pilots training on a flight simulator are not really flying but the models of the flight, the plane, and how meteorological conditions influence them are accurate enough to give pilots the experience of flying and train them for normal and emergency procedures. This phase was the occasion to search for a model with which it would be possible to analyse my collected data in a way which would verify or disprove my four suppositions (my working hypotheses) and answer my different research questions.

#### *3.1.5 Explanation phase*

Theory is a broad subject and the most complex tool for research (Grix, 2010). It is the final process, coming after the models, built with the aforementioned tools, have been tested within different contexts and a set of hypotheses. Scheffler (1967) offers the following definition of ‘theory’:

Theory is a creative and individualistic enterprise that goes beyond the data in distinctive ways, involving not only generalisation but postulation of entities, deployment of analogies, evaluation of relative simplicity and [...] intervention of new language (p. 122).

An unresolved debate exists about what makes a Good Theory or a Bad Theory. For Popper (1985), a Good Theory must be ‘falsifiable’, or ‘refutable’, or ‘testable’. For Hawking (1996),

A theory is a good theory if it satisfies two requirements: it must accurately describe a large class of observations on the basis of a model that contains only a few arbitrary elements, and it must make definite predictions about the results of future observations. (p. 10)

A wide range of different theories exist which can be applied to sociology or education – critical theory, activity theory, Freudian theory, Rawls’ theory, personal theory, Marxist theory or even chaos theory – and which must be considered alongside the ontology and epistemology underpinning each of them. The choice of one or more theories for research must be coherent with these foundations, and also with the research question, and the researcher’s own history and beliefs. Thomas (2007) claims that the theory for research must not be created or used *per se* but for what it will say about the aim of our research.

The aim of my study is not to provide a new theory of ePortfolio practice but to suggest a model of reflection to analyse the interaction of the main stakeholders in an ePortfolio project, generalised from my findings on teacher training. The model I suggest seeks to facilitate the identification of the internal and external variables that influence trainee teachers in transferring their ePortfolio practice to the workplace, and examine how the professional context influences the continuation of such practice. I am not suggesting a theory of transfer because my findings present the reality of participants’ personal perceptions of their ePortfolio practice. Although data analysis shows that participants share some common experiences and perceptions, I consider that the number in each role (teachers, supervisors, educators) is too few from which to build a Good Theory in Popper’s (1985) sense, and does not respond to either of Hawking’s (1996) two requirements: ‘prediction’ and a ‘large class of observation’.

## 3.2 My research framework

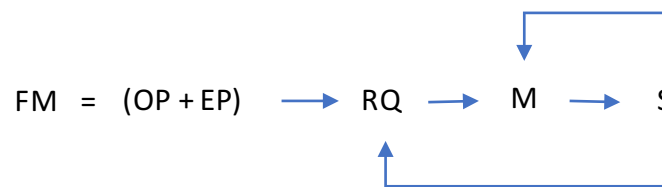
In this section I present my research and reflection on the ontological and epistemological foundation of my framework before outlining my development of the model that underpins my research.

### 3.2.1 Ontological and epistemological approaches

As well as being shaped by the conceptual tools employed, a research project and its framework (FM) are always underpinned by ontological and epistemological assumptions on which the paradigms and the theories that will be used for research are also based. Ontology focuses on claims about the objective nature of reality or realities while epistemology questions what knowledge is and how it can be acquired. The researcher’s ontological (OP) and



epistemological positions (EP) influence the research questions (RQ), which themselves impact upon the nature of the methods (M) to be employed which then determine the nature of the sources (S) for the data. Grix (2010) suggests that the research question shapes the type of methods researchers decide to use; both then help to focus on the sources of the literature review (p. 31). My own perception is that we could add to this the influence of the ontological and epistemological positions chosen by the researcher:  $FM = (OP+EP) \rightarrow RQ \rightarrow M \rightarrow S$  (adapted from Grix, 2010, p. 31). Moreover, considering that gathering (S) – the source of data (literature review and data from the field) – is a constant process (see e.g. Figure 3-1), this may also influence and change the M – the method – and RQ – the research questions – until the research is published. Therefore, my representation of Grix’s equation would be what is represented in Figure 3-2.



*Figure 3-2: Adapted from Grix (2010), composition and evolution of a methodological framework*

In my field of research my ontological position is to assume that a group of activities made by trainee teachers converges on the creation of an apparatus, an ‘ePortfolio’. I also assume that these activities – ‘ePortfolio practices’ – can be recorded or observed and studied, as well as the ePortfolio itself, which is the result of these practices. Finally, I recognise that research on these practices is strongly linked to how researchers reflect on them, but also to the reasons why they originally engaged with the research – the artefacts do not necessarily speak for themselves (see Section 2.1).

To develop this position, there are many paradigms I could select to frame my research. To choose one I could either:

- keep that which best matches my convictions and which seems to me most truthful;
- as all the features of each paradigm are, by nature, not demonstrable, I could privilege that which most corresponds with the study of the reality in which I am interested.

I have selected the second option in my research. In this sort of ‘paradigmatic opportunism’, I consider that the paradigms must reflect the feasibility of the research more than personal convictions. Different paradigms are consequently different opportunities to collect truthful information about the subject. The quality of the paradigm is thus not linked to its matching reality, or the truth, but related to its heuristic – the way it helps me think about the reality I am studying.

Identifying my epistemological position similarly involves an element of selection. According to May (2011), there are two main schools of thinking in epistemology: the schools of objectivity and subjectivity. Schools of objectivity include different philosophical positions such as *positivism*, *empiricism* or *realism*. Positivism originated in France during the Enlightenment, when philosophers were searching for a way to explain the rapid development of human spirit through the ‘positive sciences’ in general, but especially maths and physics. Consequently, in positivism, the scientific experiment is the only acceptable way of producing an accurate understanding of the world. Empiricism shares with positivism the search for ‘facts’ from the observation of empirical phenomena, independently of how they could be interpreted (May, 2011). Nevertheless, the fundamental difference between these two schools is that positivism is theory-driven while in empiricism the facts speak for themselves. Empiricism and positivism have the common idea that objectivity is obtained by the “researcher’s detachment from the social world, as well as the accuracy of their data collection instruments” (May, 2011, p. 31). Realism shares with positivism the aim of explaining the nature of empirical phenomena, but like empiricism, it is not theory-driven. Knowledge of something relies upon its being classified correctly in categories. Realists suggest that structures exist and shape us as objects and subjects. The main difference then between these two schools is that realism considers that the formation of knowledge is not independent of researchers’ relationships to the social world they are studying. Neither positivism, empiricism or realism fits my ontological position. The core of my research, driven by my three research questions, is related to how participants reflect on the practices I want to study; qualitative methods seem to fit this aim better than quantitative methods, and consequently I reject the idea that an objectivist epistemology would fit my research framework.

The roots of the notion of subjectivity are found in Descartes (2001) where ‘*cogito ergo sum*’ means that I exist because I think. My existence is not intrinsic, *per se*, but it is the result of the action made by myself, the subject. In my view, a subject may be seen as the author of their actions and their representations. As seen in Chapter 1, one of the aims of ePortfolio is to

present a truthful picture of the self (Topkaya and Çelik, 2016; Jones and Leverenz, 2017; To, 2017). Consequently, constructions of the subject and of subjectivity are essential to understand and study ePortfolio practice. I have therefore positioned my research epistemologically within the school of thought of subjectivity, and, moreover, in the current of ‘idealism’, for the following reasons:

- Idealism considers that our world is not driven by a succession of causes and effects: ‘commitment’ and ‘engagement’ are a condition for studying and understanding social life. The main tool of idealism is the ‘hermeneutic principle’ (Heidegger, 1996).
- Idealism does not aim to explain why people behave in certain ways in reference to their conscious or subconscious impulses – as realism does, e.g., Freud (2013) – but how they interact with each other, interpret and shape the world.

My Supposition D is that stakeholders’ behaviour and the contextualisation of teachers’ ePortfolio practice in their environment influence the transfer of these practices. I also consider that ePortfolio practice evolves with time and is not a succession of causes and effects but the result of a complex construction and representation of oneself. Given this view, I am driven to consider idealism as a valid epistemological position underpinning my research.

### *3.2.2 Theory*

At the beginning of my project, and prior to the analysis I subsequently made of research methodologies, I planned to work within a socio-constructivist framework. For me, socio-constructivism is founded on two important ideas:

- knowledge is socially constructed. The emphasis is on the impact of collaboration and negotiation on learning and knowledge creation (Piaget, 2001; Doise et al., 1998), an idea which is central to ePortfolios;
- socio-constructivism is fundamentally connected with the concept of the ‘zone of proximal development’ (ZPD) (Vygotsky, 1978), where able individuals actively help those who are less able to perform at a level beyond what an individual could achieve alone.

Socio-constructivists see different interactions between the contexts and the individual. While in childhood development, Piaget (2001) attributes primacy to the individual, Vygotsky (1978) considers that the social context is paramount.

My view of ePortfolio practice, with its strong emphasis on collaboration, and my hypothesis about the significance of the context within which it takes place, indicates a clear connection with the first point. Nevertheless, the nature of an ePortfolio is intertwined with paradigms of ‘collaboration’ and ‘reflexivity’. This initially led me to consider the contributions of constructionism (Papert, 2006) and then connectivism (Siemens, 2005), both extensions of socio-constructivist thinking. But while both constructionism and connectivism are theories about the construction of knowledge, they do not emphasise the influence of the environment, which is one of my working hypotheses. I then moved to consider CHAT, a framework which integrates all previous elements, and provides a tool (the Engeström triangle) with which it is possible to reflect on the influence of each element in a holistic way. In my view, such a holistic approach is necessary given the intrinsically holistic nature of ePortfolios themselves. This has been observed, among others, by Hallam and McAllister (2008) when describing how librarians build their own professional identity through their personal ePortfolios, and Weber and Myrick (2018) in their study of how this aspect of ePortfolios positively impacts upon research students' learning. Because of this holistic element in ePortfolio practice, I felt that a methodology which lent itself to such a global overview would focus attention on the interaction between the different variables with which my research engaged. Moreover, my own experience of building an ePortfolio suggested that the creative process is driven by both the subject's personal history and by the culture within which the ePortfolio is developed. This inter-relational emphasis is fundamental to a CHAT approach. I will briefly outline the elements from which CHAT is comprised, and how they shaped my research.

CHAT is a complex theoretical framework composed of different insights and ideas, and layers of contributions from successive thinkers rather than a clear set methodology. Seminal work on CHAT began in the 1930s in Russia with the work of Lev Vygotsky, and subsequently Alexei Leont'ev and Sergei Rubinstein, but it was only in the late 1970's that their works were translated, first into German and Finnish, and then into English. Translation of concepts from Russian into English via German has added complexity to the comprehension of these scholars' original ideas. Cole (2009) claims that the difficulty of translating Russian scholars' work on CHAT has yet not allowed it to penetrate English readers' consciousness; he also points out that social representation of notions such as ‘education’ or ‘learning’ in the 1930's Russian

context are not comparable to those of the European West during the same period of time, let alone the late 1970's.

CHAT's roots lie in a reaction to the behaviourist current prevailing in the fields of sociology and education in the first half of the twentieth century. Whereas behaviourism views human activities as the result of an individual's reaction to an external stimulus, CHAT sees human activities as mediated by shared practices and institutions. In a basic activity system (Vygotsky, 1962) the relationship between the subject (the individual who is the analytical focal point of the study) and their object (the goal of their activity) is mediated by artefacts (tools). This forms a triad of subject-tool-object.

Marxist theory of labour considers that the central point in the definition of human activities is how people use tools to change and control their world (Marx, 1867). Vygotsky extends this vision with a broader sense of what such a tool can be – a physical tool (e.g. a hammer or a technological apparatus) or a sign system such as a language formed by vocabulary and grammar (Vygotsky, 1962). This broader definition is useful for the field of my research, where the tools encompass all computer mediated services used to develop ePortfolio practice, the training documents (physical tools), as well as the specific vocabulary and grammar linked to ePortfolio practice (culturally-developed signs). In Vygotsky's activity system triad, the subject is either an individual or a group of individuals that share the same object, where the object is the aim towards which the activity is driven (Nardi, 1996). Subjects use mediating artefacts (tool) to attain a goal (object) and this use is conditioned by the history and culture within which the subjects are situated. Leont'ev (1965) adds to Vygotsky's triad new elements – division of labour, rules, and community – shifting the model from an individual to a collective perspective. As I have already discussed in the two previous chapters, while the building of an ePortfolio is a personal project documenting personal achievements and the process of learning, the latter cannot be separated from the personal history and the social settings that Leont'ev's additions to Vygotsky's theories emphasise.

The first element that Leont'ev introduces, the 'division of labour', is twofold: one level of division (vertical) shows the hierarchical relationships within the community while the second level of division (horizontal) expresses how the workload is divided among the same community. The division of labour explicates the role of each member of the community in helping the subject to develop the activity toward the object and attain the desired outcome. In terms of my own research, this concept implies, as Supposition C suggested, that focussing my research only on teachers would not be enough to understand the variables that encourage or

limit the transfer of ePortfolio practice and that it would also be important to study the role(s) played by other stakeholders. As the study of roles and how they are distributed inside the community is an integral part of CHAT, this element of the methodology helped to shape my research framework. The determination of the elements that form the ‘community’ in my study is discussed in Section 3.3.1 below.

The second element introduced by Leont’ev, the ‘rules’, are the “explicit and implicit regulations, norms, and conventions that constrain actions and interactions within the activity system” (Israel and Duffy, 2014, p. 150). In the context of this thesis, for instance, rules could be university regulations on how to make an ePortfolio. The difference between explicit rules – published grids of objectives or rubrics for assessing the ePortfolio practice – or implicit rules – personal rules decided by the individual and imposed on themselves about how to work with and develop ePortfolios – was an important distinction on which to focus.

The third element that Leont’ev adds, the ‘community’, is more difficult to grasp: although ‘subject’ and ‘community’ are separate elements in CHAT, they could easily be confused. For example, Kuuti (1996) considers that the community is formed by all the individuals having in common the same object: however, this also corresponds to the definition of the subject when it is considered as a group of individuals. This ambiguity can be resolved if the subject is considered as the focus of the research and extracted from the community as a subgroup of it (Engeström et al., 1999).

In CHAT, social reality and the individual subject are linked by the study of both through the mediating activity. A key development in modelling this relationship comes through Engeström’s triangle (Figure 3-4). Engeström built on Vygotsky and Leont’ev’s activity systems, developing a model which takes into account the environment, personal history, culture, role of the artefact, motivations, and complexity of real life activity (Engeström, 2000; Jonassen and Rohrer-Murphy, 1999).

In Engeström’s triangle (below), the upper part represents group or individual actions embedded in the activity system: the lower part of the triangle adds a sociological dimension by representing the community which impacts upon these actions, the division of labour within the community and the rules that shape it. Thus, Engeström adds a new layer to the analysis of the activity system, which considers psychological, cultural and institutional viewpoints. Subsequently, Engeström refined his model further by adding the notion of networking systems and shared objects – different triangles with different subjects each sharing the same object –

focussing on the dynamic effect they have on each other as well as the tensions generated within and between them.

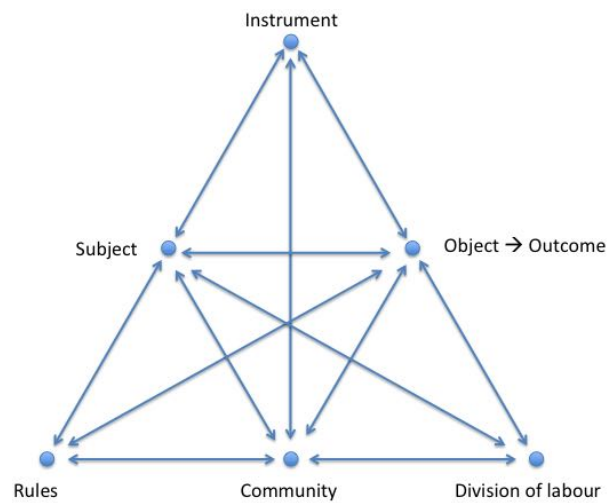


Figure 3-3: The Engeström triangle or second generation of CHAT (Engeström, 1987)

Besides the different evolutions from the first generation of CHAT (Vygotsky 1978) to Engeström (1987)'s model (third generation of CHAT) described above, the concept of activity has been observed from different perspectives. I will now describe those perspectives and explain how they impact upon the choice of my methodological framework.

Leont'ev and Hall (1978) suggested refining Vygotsky's original concept of activity by adding three different levels of complexity, which outline how the activity develops from the conceptual to the operational: 'activity', 'action', and 'operation'. In figure 3-5, I present a summary of these levels of activity, before explaining the distinctions between them and how they are important for my research.

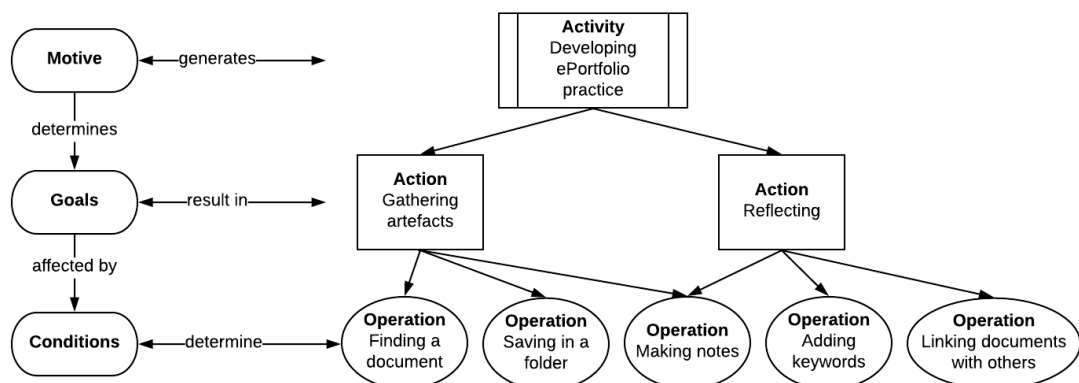


Figure 3-4: Example of actions, operations in the activity of developing ePortfolio practices

For each of these three levels the object is different. For Leont'ev, an activity always seeks to fulfil a 'motive' – "activity does not exist without a motive; non-motivated activity is not an activity without a motive but activity with a subjectively and objectively hidden motive" (Leont'ev and Hall, 1978, p. 67). The conceptual form of activity is realised by a set of 'actions' taken by the subject. The aim of actions is to achieve the 'goals' that flow from the original 'motive'. This corresponds to the 'why?' question about the activity – for example, in the context of my research, why trainee teachers build ePortfolios at the workplace or during their training. In the middle level of activity, the subject is 'actions' targeting 'goals' or sub-goals, corresponding to the 'what?' question – what actions are necessary to build an ePortfolio? The actions are themselves divided into a set of 'operations' that are selected and made according to the 'conditions' that surround the goals, which corresponds to the 'how?' question – how do I carry out the action of building an ePortfolio that documents my learning?

At the 'activity' level, human labour is accomplished with minimal conscious awareness whereas 'operations' require a more conscious level of awareness. For Wertsch (1988) people are unlikely to be aware of the 'activity' they have done and consequently have difficulties reflecting upon it. This integration of 'operation' into an activity can be compared to the different levels of integration of new learning to produce a skill. For example, learning how to drive a car begins with simple operations such as activating the brakes, disengaging the clutch, turning the engine on, etc. At the beginning, each of these tasks is carried out in a set order with full consciousness of the learner, whereas an experienced driver starts a car and joins the traffic without more than a minimal conscious awareness of carrying all these operations out.

The consequence of this perception of hierarchical levels within human activities is that the result (object) and the outcome of a CHAT system, e.g. building an ePortfolio or driving a car, may be easily observable but difficult to analyse. It is straightforward to see that the car has been driven from A to B or that an ePortfolio has been built by a subject, but, as Wertsch (1988) observes, it is difficult for the subject to explain all the actions and operations engaged with at a lower level of consciousness. This perception impacted upon how I would have to collect and analyse data. Observing and quantifying the presence or absence of ePortfolios among my participants could be done with quantitative methods but understanding the 'what?' and the 'how?' required a different approach, using qualitative methods. Moreover, my participants would have to discuss their present ePortfolio practice while also recalling what they had learnt during their training. Subjects' awareness of the operations they carry out,



however, fades away both with time and through the integration of them into actions and the activity. This introduces the possibility that what operations were and how they were conducted may be part of the explanation of why transfer of ePortfolio practice does – or does not – happen. Therefore, methods that give participants the space and the confidence to go back and analyse their operational practice have to be privileged.

As a methodology, CHAT is coherent with my ontological and epistemological positions. For Van Oers (2002) an activity is “any motivated and object-oriented human enterprise, having its roots in cultural history, and depending for its actual occurrence on specific goal-oriented actions” (p. 712). In my research, the learning of ePortfolio practices is the activity, with ePortfolio practice as its object. By its nature, the development of ePortfolio practice carries a cultural and historical background while one of the goals of an ePortfolio is to document the process of learning and the development of one’s skills.

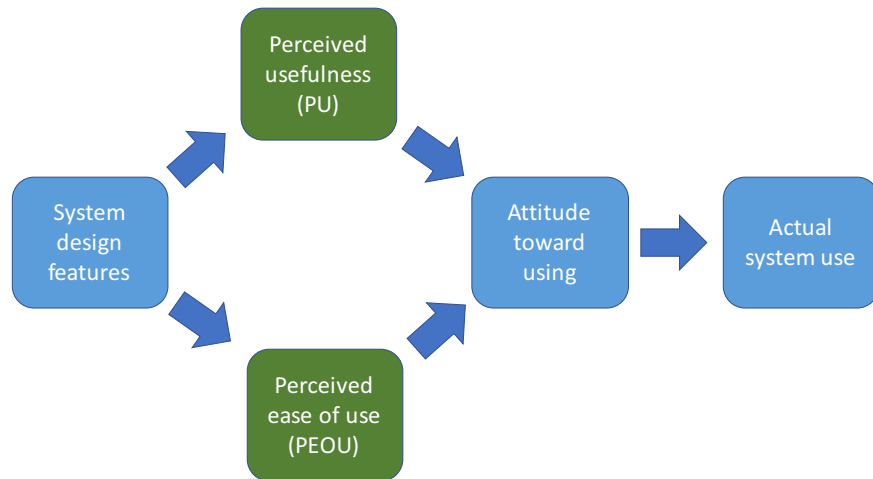
In the literature review I noted (Section 2.4) that CHAT has often been used to investigate the social-web and personal learning environments (PLE) (Buchem et al., 2011), computer-mediated collaboration (Collis and Margaryan, 2004), the building of virtual communities with ePortfolios (Voigt, 2009), or the adoption of ePortfolio systems (Abidin et al., 2013). This strengthened my perception that CHAT could be a useful framework for my own research but I also noticed that rather than engaging in depth with the theory underpinning CHAT, scholars basically adapt Engeström triangle to the needs of their study. Waycott (2004) observes the same phenomenon, concluding that the complexity of CHAT often pushes researchers, including herself, towards using CHAT as a tool for thinking rather than for building theories. For example, above, Buchem et al. (2011) use more than one methodological frame work (CHAT and GT); regarding CHAT, they comment on each element forming the triangle without addressing the relationship between them and the eventual tensions they produce (an idea derived from the third generation of CHAT). Collis and Margaryan (2004) build their own framework – work-based activities mixed with computer-supported collaborative learning (WBA-CSCL) – based on CHAT but do not really engage with CHAT itself. Voigt (2009) refers once to CHAT to support his claim that communities have an influence on individual practices, and finally, Abidin et al. (2013) develop a fuller use of Engeström’s theories but their article predominantly proposes an investigation model. While some researchers develop their framework using mixed approaches based on CHAT, others suggest introducing CHAT as a supplement to their central methodology. For example, in his study about ePortfolio template development, McGrath (2005) uses TAM but suggests that, in order to gain a fuller

understanding of users' acceptance of technology, CHAT could be added to achieve a more holistic approach.

In section 2.2.1, I also observed that in Baldwin and Ford's model (1988), motivation and environment directly influence the conditions of transfer. While CHAT studies the environment, in my comprehension of the model, it does not explain the role of the subject's internal variables which contribute to the dynamic of the activity system. Consequently, it seems to me that another model is needed to explain teachers' own construction of their motivations for making this transfer.

Like McGrath (2005), I believe that TAM is a useful framework with which to study these internal variables in my subjects, with the two central elements of 'perceived usefulness' (PU) and 'perceived ease-of-use' (PEOU) that Davis (1989, 1993) describes in his model (Figure 3-5), two factors that impact upon users' motivation to accept technology. TAM has already been used as a model to study students' intentions of using an ePortfolio – for instance, Cheng et al. (2015) and Shroff et al. (2011). Extensions of TAM include the theory of reasoned action (TRA) developed by Fishbein and Ajzen (1977) and the theory of planned behaviour (TPB) developed by Ajzen (1985, 1991). TRA suggests that intentional behaviour is driven by two elements (attitudes and external norms), which are determined by users' personal beliefs, and their motivation to accept these norms. TPB adds a new variable which is the perception of the control users have over their behaviour.

My interpretation of these different theories is while they share concepts and elements, TAM offers the fullest correspondence to my research needs. In Davis' (1993) TAM, the inductive variable PU can be related to Fishbein and Ajzen (1977)'s concept of personal motivation and beliefs, but his new variable, the PEOU, which alludes to the relationship between the users and the tools, does not have a corresponding concept in Fishbein and Ajzen (1977, 1991)'s theories. Because my research focusses on ePortfolio as a tool and a process, and the perceptions users have of their ease of use, it seems to me that neither TRA nor TPB have all the elements needed for my methodological framework.



*Figure 3-5: The TAM model, adapted from Davis (1993, p. 476)*

The theory around TAM has been refined over time, from TAM 1 to TAM 3 (Venkatesh, 2000) and finally to the Unified Theory of Acceptance and Use of Technology (UTAUT) (Venkatesh et al., 2003). In UTAUT, new social demographic variables (gender, age, experience and voluntariness of use) are added to the original TAM model, where they moderate the impact of four key concepts which construct the attitude towards accepting and using technology (Venkatesh et al., 2003). Use of these versions of TAM is mentioned anecdotally in published research where researchers have developed their own refinement of TAM to study ePortfolios (e.g., Ng et al. (2013), or Adbdullah and Ward (2016) with their General Extended Technology Acceptance Model for ELearning – GETAMEL). My decision to use the original TAM instead of subsequent versions is governed by the fact that this theory will be only one part of my personal research framework, alongside CHAT. I would like the option of comparing the analysis of my own data with previously published research on ePortfolios, not only with those where an adapted TAM has been used.

I also considered other theories that could identify internal variables in trainee teachers that would influence their decision to transfer their ePortfolio practice to the workplace, among them Rogers (1995)'s innovation diffusion theory. In my experience as a teacher of technology and economics, Rogers' theory is useful for understanding how one technology succeeds or fails to replace an existing one. I would have considered using this theory of innovation if I was comparing the development of paper-based portfolios with ePortfolios, but this is beyond the objectives I set in my research questions.

### 3.2.3 Models, ideal-type and typology

ePortfolio research lacks a clear ‘ePortfolio model’, although models exist to study how and why ePortfolios are used. This lack is primarily due to ePortfolio’s flexibility: learners or teachers can employ them from different perspectives and adapt them to different aims (e.g., a learning ePortfolio, ePortfolio for assessment, showcase ePortfolio, etc.). The existing models, therefore, refer not to an ePortfolio *per se* but to how or why we use them. For example, Buzzeto and Aladae (2008) suggest one model for selecting and implementing ePortfolios, while Huang et al. (2012) present a ‘learning ePortfolio model’ based on goal orientations and metacognitive strategies.

None of the models I found during the literature review are easily related to my object of study, the continuation of ePortfolio practices. Consequently, I developed my own ‘ideal-type’ model (Figure 3-5), which I term acceptance of transfer of ePortfolio practice model (ATePP), and which combines two different approaches in relation to my supposition (Supposition D) that the motivation for transferring ePortfolio practices is the result of internal and external variables. The internal variables are summarised by two elements linked to TAM (PEOU and PU); the external variables are studied through the lens of the Engeström triangle.

The two triangles in my model represent two different moments in the history of a teacher (subject): as a trainee teacher (the triangle on the left) and as a professional teacher (the triangle on the right) of the activity system. In aligning each triangle with my RQs, I considered them as three sub-systems. The first is formed by the triad ‘subject-tool-object’ as in the initial CHAT model (Vygotsky 1978): this triad focusses on RQ-1 and its related sub-questions, which address the nature of transferred ePortfolio practices and the subject’s motivations. The second sub-system is formed by the triad ‘object-community-division of labour’, and focuses on RQ-2, which considers how other ePortfolio stakeholders may impact upon the transfer of ePortfolio practices. The third sub-system is formed by the triad ‘community-rules-subject’: this triad focusses on RQ-3 and its related sub-questions, which address the external factors that may influence subjects’ decisions to transfer their ePortfolio practice to the workplace (or not). The nature of my RQs overall puts the focus on the activity system where the subject is a professional teacher at the workplace. Consequently, the triangle representing this activity system is larger and the other, focussing on taught and past ePortfolio practice is smaller.

The elements that form ATePP, based on the Engeström triangle, are presented below in Table 3-1.

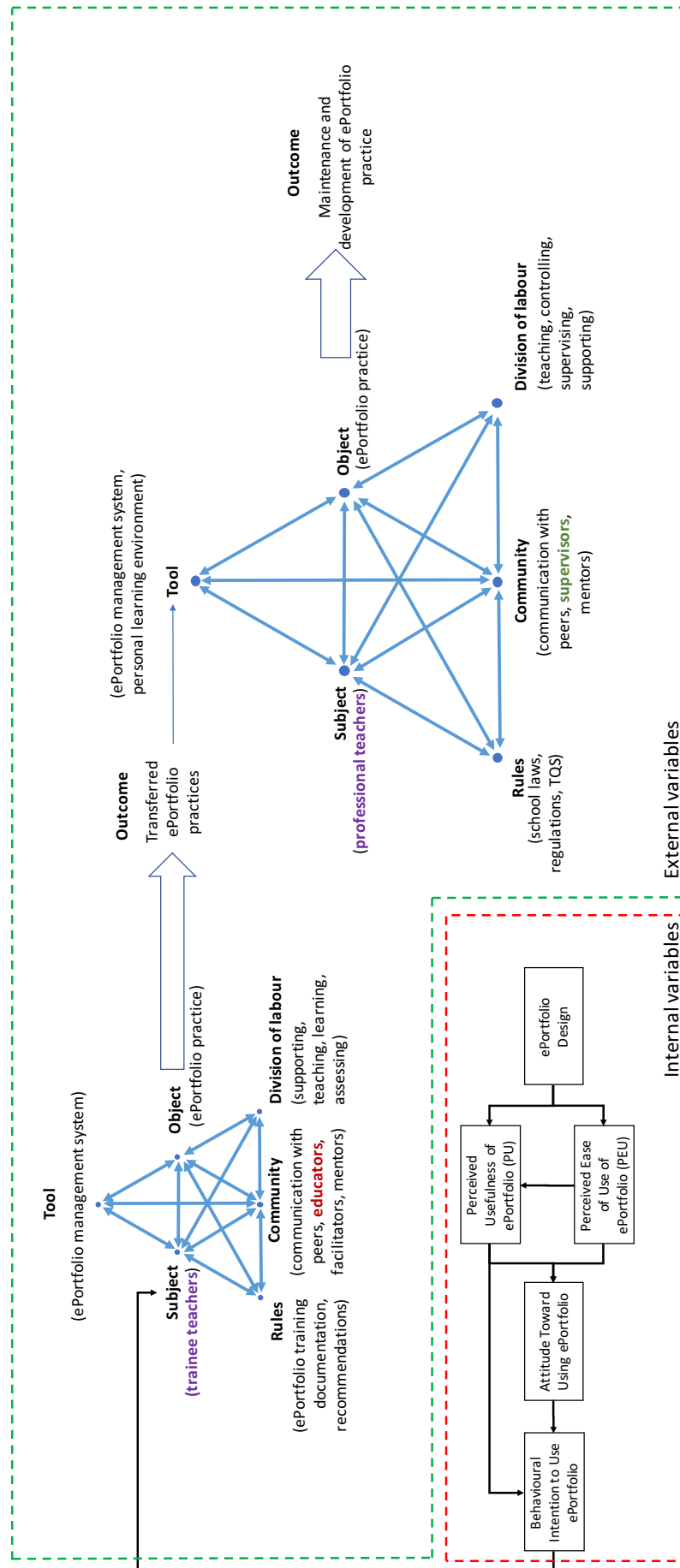


Figure 3-6: Presentation of my model of acceptance of transfer of ePortfolio practice (ATePP)

	<b>During teacher training</b>	<b>At the workplace</b>
Subject	Trainee teacher	Professional teacher
Object	ePortfolio practice	
Outcome	Transfer of ePortfolio practice	Maintenance and development of ePortfolio practice
Tools	ePortfolio management systems	<ul style="list-style-type: none"> <li>• Transferred ePortfolio practice</li> <li>• Personal learning environment (PLE)</li> </ul>
Rules	<ul style="list-style-type: none"> <li>• ePortfolio training documentation,</li> <li>• Recommendations</li> </ul>	<ul style="list-style-type: none"> <li>• School laws</li> <li>• Regulations</li> <li>• TQS</li> </ul>
Community	<ul style="list-style-type: none"> <li>• Educators</li> <li>• Peers</li> <li>• Facilitators</li> <li>• Mentors</li> </ul>	<ul style="list-style-type: none"> <li>• Supervisors</li> <li>• Peers</li> <li>• Mentors</li> </ul>
Division of labour	<ul style="list-style-type: none"> <li>• Supporting</li> <li>• Teaching</li> <li>• Learning</li> </ul>	<ul style="list-style-type: none"> <li>• Assessing</li> <li>• Teaching</li> <li>• Controlling</li> <li>• Supervising</li> <li>• Supporting</li> <li>• Learning</li> </ul>

*Table 3-1: Elements of ATePP that form the two Engeström triangles*

While Engeström's triangles in ATePP help us to see how the way that trainee teachers build ePortfolio practice influences whether they will or will not transfer them, they do not help us to explain the internal processes within the subject that foster this action. Therefore, my model adds the two main variables of TAM: PEOU and PU to address this. Usually TAM is linked to quantitative research where participants provide data through responding to questionnaires or multiple-choice questions. Statistical analysis of these responses provides the researcher with indicators of how the elements of the model PEOU and PU influence each other.

My research does not engage with quantitative analysis as I consider that PEOU and PU can also be determined by a qualitative approach. Indeed, I would suggest that listening to the voices of teachers provides more truthful information about their internal perceptions of the ease of use and usefulness of ePortfolio practice, because qualitative approach methods such as focus groups or interviews capture more open information than quantitative methods (Creswell and Poth, 2017; Silverman, 2006). Existing studies on factors influencing the acceptance of ePortfolio and the continuation of use of ePortfolio include, for example, Hsieh et al. (2015) (with  $n=122$ ), who show that after the transfer, PEOU is not the key influence on the continuation of using ePortfolio – the key factor is user satisfaction; and (Abdullah et al., 2016) ( $n=242$ ) or Ahmed and Ward (2016) ( $n=204$ ), who show that PU explains more than 60% of the intentions of users to engage with ePortfolio practice. These studies collect information on more than 100 participants ( $n>100$ ), whereas in my research I interviewed only a dozen teachers. Quantitative analysis of my collected data would not have been significant. But qualitative information may be excavated from my data regarding PEOU and PU, which can be compared with, and may complement, previously published quantitative results.

### 3.3 Framework of the three case studies

My choice of case study as part of my research framework is informed by three elements: the goals of my research questions; the theories (CHAT and TAM) and the related models (ATePP) I have chosen to analyse the data; the methodological approach (qualitative) selected for this study, and the size of my research.

While the core aim of my research has not changed since I submitted my research proposal, the phrasing of my RQs certainly has, and as they evolved, they gradually shaped the frame of the whole research. Yin (2013) points out that building research questions is always a long process but it is paramount in elaborating the rest of the research because “[t]he framing of the question can directly influence the choice of research methods, with an essential goal being to avoid mismatches between the type of question and the type of method selected” (p. xxii). For Yin (2013) the choice of case study as a research method prevails when the three main elements are united:

1. the main research questions are “how” or “why” questions;
2. a researcher has little or no control over behavioural events;
3. and the focus of the study is a contemporary (as opposed to an entirely historical) phenomenon. (p. 4)

Rowley (2002) also agrees with this list of elements, and suggests a table to help the choice of a research strategy according to the form of the question.

Strategy	Form or research question
Experiment	How, why
Survey	Who, what, where, how many, how much
Archival analysis	Who, what, where, how many, how much
History	How, why
Case study	How, why

*Table 3-2: Choosing a research strategy, Rowley (2002, p.17, Figure 1)*

Yin (2013)'s list corresponds to the setting of my research: my main question addresses the 'what' and the 'how' of trainee teachers' ePortfolio transfer: 'what' is transferred (RQ-1) and 'why' (RQ-2 and RQ-3); but as Table 3-1 suggests, strategies other than case study - such as history of experiment - would also be valid. Firstly, however, as a researcher, I have no control over the behavioural events I will study; I can record what has happened and what is happening but I cannot change the variables of the field of research – the participants' experience and the way they want to talk about it. Consequently, I must reject experiment as a potential strategy for my research, because one of its key methods is to change parameters of the model to establish how successfully it explains the observed phenomenon. Secondly, while my research seeks to compare teachers' current and previous ePortfolio practice, it cannot be considered as a historical study of past ePortfolio practice, and therefore the history strategy is not suitable either. Furthermore, many authors, such as Bazely (2013) consider that case study is the natural method for qualitative analysis.

In conclusion, I have adopted case study as a valid method for my research. It allows a holistic approach from a real-world perspective and provides a way to understand in-depth complex social phenomena, which is the aim of the hypotheses, RQs, and methodology for my research.

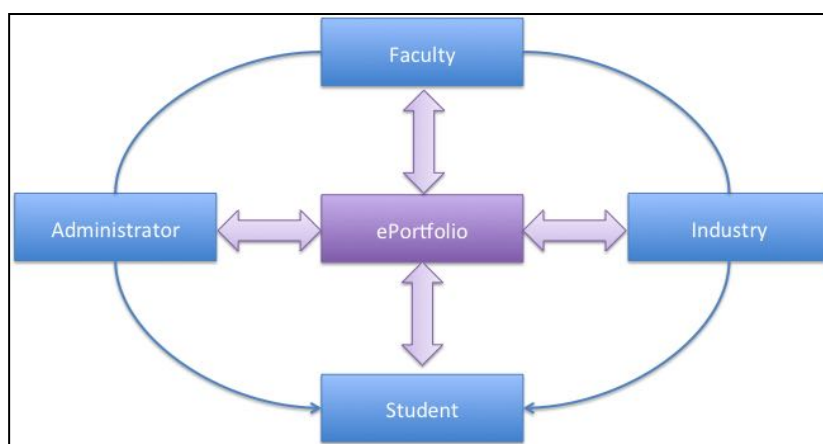
### *3.3.1 Conceptual framework*

In Chapter 1, I explained why I focussed my research on teacher education where ePortfolio practice was taught as part of the curriculum. Although the main individuals studied here are the teachers themselves (the 'subject' in my ATePP model), the ePortfolios they



produced during their teacher training or which they may produce during their professional careers also have relevance for and entail involvement from other actors – the ‘community’, as Leont’ev (1965) described it (see Section 3.2.2 above). To determine the elements that would form the ‘community’ in my ATePP model, I drew on my own personal and professional experience, as well as existing studies.

Singh and Ritzhaupt (2006) identify four types of stakeholders in interaction around ePortfolio practice: Students, Faculty, Administrators, and Industry (Figure 3-7). Each of these stakeholders has a different domain of interest: learning for students, assessment for faculty and administrators, and employment for industry.



*Figure 3-7: The ePortfolio stakeholders' interactions, based on Singh and Ritzhaupt (2006)*

One of the most significant aspects for me in Singh and Ritzhaupt's paper is that they suggest broadening research on ePortfolio practice to actors other than students or faculty. I have pointed out in the literature review that research on ePortfolios is often organised predominantly around a focus on the students – e.g., Patent (2007) on students' engagement; Bolliger and Shepherd (2010) on students' perception; or Kernan (2010) on students' employability – rather than around other stakeholders. However, given that employability is often an aspect of ePortfolio focussed on in these studies – e.g., Cabau (2017) or Choate et al. (2016) – it seems to me that what other stakeholders such as employers, HR personnel, teachers, supervisors want (or perceptions about what they want, for example Learning, CDP, visibility for teachers; assessment and visibility for educators; and employment, controlling high stakes in teaching standards, visibility for supervisors) has an impact worth considering.

As Singh and Ritzhaupt (2006) conclude, the main actor whose behaviour conditions each relationship around ePortfolio practice remains the student and their perceptions. Nevertheless,

it is clear that, when looked at from a more global CHAT perspective, not all interactions are explained by studying only the main actor.

Like Singh and Ritzhaupt (2006), I believe that different stakeholders influence or contribute to students' behaviour in the transfer of ePortfolio practice from their academic study to their workplace as education practitioners. Consequently, I derived the model for my study from theirs, which included three main stakeholders on which I decided to focus: the graduate students, their educators during their teacher training, and their supervisors at the school where they were working at the time of my research.

As outlined in Chapter 1, the *teachers* group comprised participants working as teachers in secondary or tertiary education, for whom engaging with ePortfolio practice had been a compulsory element of their teacher training; the *educators* were those who had been in charge of teaching, facilitating and assessing this element of their training; and the *supervisors* those in charge of assessing and/or controlling teachers in their places of work. The different groups and their interactions are summarised in Figure 3-8.

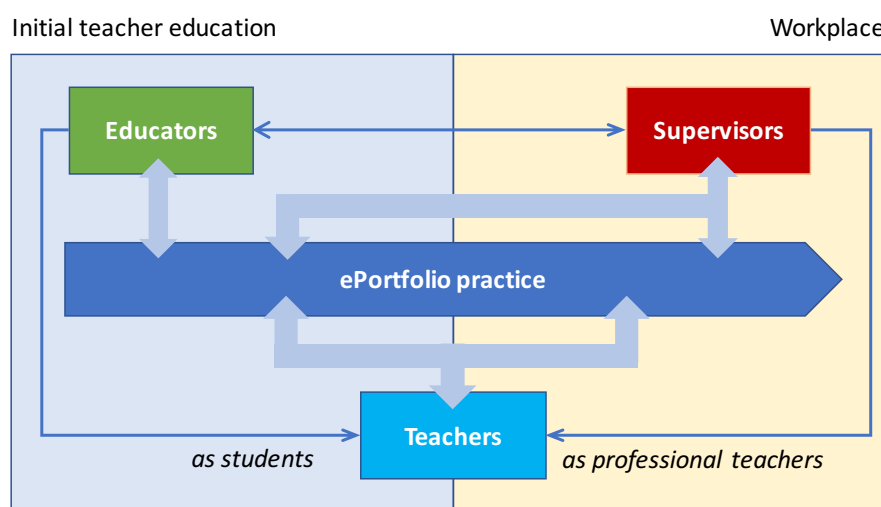


Figure 3-8: Interactions between the groups of participants, based on Singh and Ritzhaupt, (2006)

Singh and Rizhaupt's model is static. It looks at the relationships between the different stakeholders at a specific moment in their history. My model (Figure 3-8) is dynamic. It presents my personal idea of the relationship and influence that I anticipate one stakeholder has on the others at different times in the teachers' lives: during their initial teacher training (left) and at the beginning of their professional careers (right). This graph also reflects my idea of the transition from student to professional as a dynamic process of change.

The influence of one group on another is represented by the thin lines. Based on my personal experience as a teacher, I expected that teachers would have little influence on how educators embedded ePortfolio practice in the curriculum, and that a similar kind of relationship would exist between supervisors and teachers when they started their professional careers. In both cases, the teachers' ePortfolio practice might be shaped or influenced by the hierarchical relationship, as Leont'ev (1965) suggests with his emphasis on the 'division of labour' – an idea I will discuss further in Chapter 5.

Leont'ev (1965) also emphasises the significance of implicit and explicit 'rules'. My own experience of working as an ePortfolio consultant led me to think that educators and supervisors would influence each other in terms of what was demanded from the teachers' ePortfolio practice. When recruiting new teachers just before or after they have qualified, supervisors are looking for specific skills and presentation of such skills in a particular way. Consequently, to support teachers' employability, educators are likely to listen and adapt to the supervisors' specific needs. These needs might be explicit, when discussed openly, or implicit when embedded in the formal and informal process of hiring a new teacher. Educators know the implicit 'rules' by experience or by receiving feedback from the teachers they taught and who have left the institution to start their teaching career. Furthermore, educators and supervisors influence teachers' ePortfolio practice through the type of demands they make of the teachers, in terms of building and maintaining their ePortfolio practice.

Supervisors and educators influence each other regarding their expectations of teachers' ePortfolio practice (Figure 3-8). When trainee teachers are about to enter the job market, supervisors, in their role as recruiters, are expecting to use ePortfolios to select candidates for their available position<sup>3</sup>. When teachers start their service in schools, supervisors may also look for teachers' ability to build an ePortfolio to document their further professional and personal training – e.g. in the Netherlands, where Lievens (2015) shows “that ePortfolio can be a valuable instrument in the process of internal human capital management” (p. 191), documenting lifelong learning and fostering mobility.

On the other hand, by advertising the development of ePortfolio practice and ePortfolio products they ask teachers to develop during the curriculum, educators can influence

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<sup>3</sup> Woodley and Sims (2011) point out that “There is very little in the literature on how employers use ePortfolios [in Australia] in the recruitment process”(p.172); but they also conclude that every interviewed student “who showed their ePortfolio to employers had a positive response” (p. 172).

supervisors' perceptions of ePortfolio practice. For example, in their study of introducing ePortfolios to business education in Australia, Watty et al. (2016) find that while the "majority of employers interviewed did not have knowledge of ePortfolios, once explained to them, all employers saw their potential in the recruitment process" (p. 13).

The thick lines in Figure 3-8 represent the constructs, the reasons why ePortfolio practice is created, maintained, and developed. At each point on the diagram, the arrows show a bidirectional transaction. In the context of teacher training, educators use ePortfolios to follow and comment upon the trainee teachers' journey (formative evaluation) and to assess their level of attainment and skill acquisition (summative evaluation) (Deneen et al., 2017). Teachers give educators access to their ePortfolios and receive feedback, comments, and evaluation in return. In this context, supervisors may already have been interested in accessing teachers' ePortfolios to pre-recruit future collaborators for their institutions, as Bramhall et al. (2012), Low and Tan (2017), and what I presented in Section 2.3.3 suggest. In such cases, teachers would provide a showcase version of their ePortfolio to develop an online presence and control their online identity. By letting potential employers (future supervisors) access the ePortfolio as an online CV, they may in return receive comments which could help them to improve or change their ePortfolios and contacts for potential recruitment interviews (Hsieh et al., 2015).

In the context of the workplace, teachers are interested in maintaining or redeveloping their ePortfolios in order to record proof of their continuous professional development, and also their reflexion on their professional practice. They may be asked by their supervisors to share elements of their ePortfolio as a way of monitoring that continuous professional training is taking place and that the teaching standards are always maintained or developed. In return for sharing their ePortfolios, teachers receive feedback that helps them to manage their professional career (Yusuf, 2017) and its development (e.g. seeking for higher position, new responsibilities, new roles in the education system, etc.).

### *3.3.2 Searching for participants*

Given the framework I describe in the previous section, each study needed therefore to be composed of a certain number of participants from each stakeholder group (teachers, supervisors and educators). Initially no decision was taken about the number of case studies I wanted to examine but I found it difficult to identify settings where I could examine all three groups of stakeholders. I noticed this at the early stage of my research, when I ran the pilot study. During the pilot study I failed to build a coherent study and I ended up testing my

research on small groups of participants who had no relation to each other. The only way I found to overcome the logistical problems of putting together the three coherent groups of participants was to interview participants whenever I was able to be in contact with them, regardless of knowing whether or not I would be able to access the other groups to form my three linked categories.

The effect of this was that data collection was spread out during the major part of the research and not focussed on a certain period of time. A positive result of this was that I had time to process and reflect upon the information collected in one interview before the next. Moreover, because I was conducting semi-structured interviews, I was able to discuss supplementary points that had emerged in subsequent interviews. Another side effect of this approach was that I conducted more interviews than the ones I ultimately used to build my case studies. Sometimes I interviewed teachers and their supervisors but the access to their former educators was made impossible; or on a few occasions, after having interviewed educators, the access to the practising teachers was not granted by the training institution, for confidential and ethical reasons. Another issue was that often institutions do not keep track of graduates' email addresses and it becomes difficult or impossible to find them years after graduation.

Nevertheless, although it was not always possible to construct a study with some of the material I collected, to respect every participant's voice and acknowledge the time they offered, I have used the data which cannot be entered in a full study to reinforce findings or to propose alternate reflections.

Throughout my research – pilot study and subsequent case studies – I used the same methods to find and contact participants, following three different paths: social networks, literature review, and personal networks. I will now describe each in turn.

I started to search for candidates broadly and more generally on Facebook, Google+, LinkedIn. I had identified different groups with interests in ePortfolio practice. Appendix 4 provides examples of groups I registered with in order to enter the ePortfolio community. Groups with an interest in ePortfolios and ePortfolio practice are not many. On LinkedIn a search with the keywords 'ePortfolio, e-Portfolio, portfolio, electronic portfolio, web-based portfolio' provided a total of 18 groups with an average of 204 members (median membership=56<sup>4</sup>); on Facebook 100 groups were found (average membership=59, median

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<sup>4</sup> The median represents the size of a group membership where half of the groups have more members than the median and half less. It also means that choosing a group randomly gives 50% of chance of selecting a big or a small group.

membership=30); Google+ returned 357 groups (average membership=165, median membership=101). On each group up to three messages were sent at different times for a call for participants.

Another method of recruitment came through using published articles on ePortfolio practice and proceedings of conferences on ePortfolios. The main source of proceedings was ePIC, the ePortfolio and Identity Conference. The first ePIC was organised by Serge Ravet in France in Poitiers (France). As a student, Ravet used a paper-based portfolio for his personal training and he was intrigued to see whether it was possible to make a computer-mediated portfolio. Instead of searching and contacting influential individuals in ePortfolio practice he decided to set up a conference in France and he invited key researchers and educators on ePortfolio and digital identity (Ravet, 2016). Since 2002, an ePIC has been organised every year in a European city (London, Greenwich, Oxford, Barcelona, Bologna). Another example of one person's initiative is 'ePortfolio Australia'<sup>5</sup>, through which Allison Miller has built a professional network to foster the use of ePortfolio in Australia and since 2011 has organised the 'ePortfolio Australia Conference' every year. The other important conferences on ePortfolio I identified are those organised at different times during the year by the AAEEBL (Association for Authentic, Experiential & Evidence-Based Learning) which was founded in 2009 to give ePortfolio "its own professional association to catalyze the implementation of eportfolios in education" (Batson, 2012). ePIC and the Australian conference are significantly different in nature and origin from AAEEBL. Both conferences have the same root – a community built around one person, organised in response to their needs – and are driven largely by one individual. Their future is not secure – attendance is variable, and dwindling, and they have only a subject-specific influence, in a local rather than a global framework. They are not necessarily sustainable<sup>6</sup>, whereas the AAEEBL is a professional association, driven by financial imperatives.

My experience was that the smaller conferences proved to be places where it was easier to make contacts and interest people in my research, and ultimately find participants, than those run by AAEEBL. Reading the proceedings of those conferences helped me to identify institutions which had presented their experience in ePortfolio practice; I also searched for

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<sup>5</sup> <https://eportfoliosaustralia.wordpress.com/>

<sup>6</sup> Since 2015, the "Australian ePortfolio Conference" has turned into the smaller but more frequent "EPortfolio Forum" and the "Moodle-Mahara Meetup". At each session, they attract only a few dozen people - nothing compared to AAEEBL with hundreds of participants at each congress. Reading the 2015, 2016 and 2017 ePIC programmes, the focus has changed from ePortfolio to OpenBadges recognition and personal branding. ePIC has also seen a decrease in the number of attending participants.

institutions which had contributed articles to ePortfolio journals and publications. In addition, I browsed universities' official websites looking for any which advertised ePortfolio use by their students during their study. After working through all these sources, I started to narrow the field by focussing on the institutions/individuals who apparently matched my prerequisites:

1. authors were either individuals working for an institution in tertiary, or institutions in tertiary education;
2. publications were about a present or a past experience of ePortfolio practice that might involve students who had then graduated, left the institution and embarked upon their professional career;
3. publications were about using ePortfolio for teaching, learning, evaluating learners.

All the prospective individuals and institutions were contacted over the phone and then by email, or directly with an introductory email including the Project Information Sheet (Appendix 5a-5c) and a request to help me to contact graduates of the past three to five years.

I also used my personal networks (friends, personal and professional contacts). During the past few years, through my work as an ePortfolio consultant, and by attending and taking part in conferences as a speaker (ePIC, Mahara UK, MoodleMoot UK/NZ/FR), I had been able to develop a network of ePortfolio experts and ePortfolio practitioners in the UK, France, Germany, Canada, the USA and elsewhere. For these occasions, I made and distributed business cards with my contact details on one side and the aim of the EdD study and the related research questions on the back. I was able to use this privileged personal network to contact any individuals I knew personally to talk about my project and ask for help in recruiting participants for my study.

### *3.3.3 Reflection on the recruitment of participants*

Hammersley (2007) encourages researchers to identify the gatekeepers who will either facilitate or obstruct the access to the field of research. Stake (1995) and Bassey (1999) advise finding a field from which we can maximise what we can learn. At the early stage of this research, during the pilot study, I did not expect finding the participants to be difficult; in fact, I thought the difficult part would be to convince gatekeepers to let me access them, as reported by Broadhead and Rist (1976), Hammersley and Atkinson (2007), or Wanat (2008). I gradually

discovered, however, that the difficulty lay not in convincing the gatekeepers, but in building the coherent triangle of teachers, supervisors and educators. This problem was partly due to external reasons related to the subject I was studying, and internal reasons related to my recruiting methods.

One of the main external reasons was the relatively low degree of maturation of ePortfolio projects globally at the time I began this study. According to Barnett (2011), the wave of interest in ePortfolios started in mid 2000, but using Google Trend to illustrate the interests of people searching on the web for concepts related to ePortfolio, it is noticeable that broader interests start from 2008 and beyond (see Figure 3-9). Most of the articles published on ePortfolios, and most presentations and papers given at conferences on ePortfolios or education, relate to one-off projects or experiences that are still ongoing/in progress at the time. Looking at the projects as a whole, I noticed that many of them had been abandoned in the early stages of their development or hadn't been conducted to their full term.

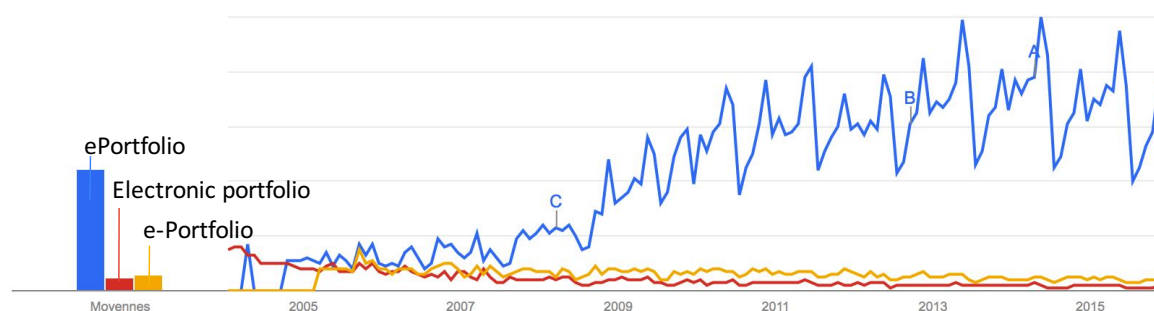


Figure 3-9: Evolution of the search for three terms related to ePortfolio.  
Made by the author with Google Trend.

Even now, the majority of papers given at major ePortfolio conferences (e.g., ePIC 2015 in Barcelona, Mahara Hui UK in Southampton, AAEEBL in Boston, EUFolio in Dublin) present results after only one or two years of taught ePortfolio practices, or describe projects to be implemented in the near future but not yet begun. Moreover, the ongoing projects they focussed on were often embedded in the curriculum for entry-level students who were beginning their studies within the institution. As I was looking to contact subjects who had not only completed their academic study but already begun their professional careers, this meant there was only a very small pool of potential recruits available for my purposes.



In other cases, institutions I contacted were not in a position to communicate personal information about their students, because of their regulations around data protection. Authors of some articles wanted to trade full access to my data in exchange for interviews or further information for their own research. The latter would have caused ethical issues on my side and consequently, I had to decline such offers. In some cases, institutions offered their participation conditionally, with the proviso that my findings supported their programmes or served their interests, and again, I had to decline these offers in order to preserve the independence of my research.

In terms of internal factors, I found that searching for participants within groups on social networks gave me the opportunity to meet individuals to talk informally about ePortfolio and ePortfolio practice but not to build a solid study. Drawing upon my personal contacts was useful in connecting me with other ePortfolio champions, but unfortunately, these individuals were not always the gatekeepers I needed, who could give me the right to access potential data sources. For example, with the Austrian study, I had a contact with the group leading the ePortfolio initiative, but it was not possible for them to talk to me without their headteacher's agreement, which took six weeks to get.

Neither finding participants through literature review nor by using groups in social networks was as successful as I had expected. It was only through a combination of these methods, and the personal contacts I had developed through my own involvement in ePortfolios and eLearning, that I was finally able to make initial contact with thirty-two institutions and thirty individuals.

Of these, twelve institutions had abandoned or had not yet started their ePortfolio projects. Fifteen did not reply, and only six still had access to graduates who corresponded with my research criteria. Of the individuals I contacted, four out of the ten who replied declined to be involved. The remaining candidates who responded and showed interest in the research study were contacted again by email with the Project Information Sheet (Appendix 5a-5c), a Consent form (Appendix 6a-6c), and the initial survey, a prior interview questionnaire to ensure that the candidate fulfilled the criteria to enter this research (Appendix 7).

As my research reached its conclusion, papers began to appear evaluating ePortfolio practice across a whole cohort of students. For instance, in Switzerland the HES-SO Nursing School have been presenting the development of their ePortfolio project at the Mahara Hui FR each year from 2013 [the start of the project] to 2017 [the results after four years of ePortfolio

practice with students])). Consequently, more opportunities for interviewing teachers about their ePortfolio practices, past and present, could be expected by the end of the decade if the ePortfolio trend continues, or at least develops along its present course. This seems to be true when looking at propositions submitted for 2017 ePortfolio conferences that discuss and analyse complete ePortfolio journeys (e.g., MaharaHui, 2017, where four out of seven papers are able to draw upon a whole cohort of learners, from year one entry students to graduation).

### *3.3.4 Data collection methods*

The choice of data collection methods conditions the type and quality of information the researcher obtains. Activity theory is culturally and historically driven. This means that time is an important factor with a CHAT approach and researchers must remain in the field of study for long enough to record its developing history and culture. Sundaramurthy et al. (2016), for example, spent 3.5 years studying how security operation centres work, and Nau (2002) interviewed each of his participants five times during eight months. Nevertheless, other studies using CHAT take place within a shorter time span, e.g. Abella (2016) or Waycott (2004). In my study, gatekeepers made it clear that access to the field was conditional on accessing it at one specified period. Therefore, I decided to use different methods to collect data, in order to maximize the use I made of the time agreed with participants, while also gathering information about the culture and the history of each setting.

In this section, I will briefly outline the methods I chose and the rationale behind my choices.

I used six different vehicles to collect data:

1. texts: legal documents, procedures, textbooks on participants' ePortfolio practice which I found through research or which were given to me by participants;
2. a short initial survey: to identify potential participants for this study;
3. semi-structured interviews: participants' discourse and answers recorded during one-hour interviews;
4. ePortfolio artefacts: participants' portfolios whenever they existed and participants agreed to grant me access to them;

5. one passive observation of a lesson: in a teacher-training institution, where educators were teaching ePortfolio practice to trainee teachers and providing help on how to use Mahara, the ePortfolio management system in use in this institution;
6. a post visit survey: sent to participants few weeks after the interviews to collect information about whether my visits have influenced their ePortfolio practice or their perception around ePortfolios in general.

Before, during and after the access to the field, I collected documents about the different contexts within which my interviews were situated, and to which they were related. The texts were found on the Internet (official local and national sites about education and the organisation of the educational system, and also public information published by the institutions I wanted to visit), in official publications, or provided by participants. This included published articles, whenever they existed, written by potential participants. In ATePP, such artefacts may be related to ‘rules’ and/or ‘division of labour’ (Figure 3-6) and also document the historical and sociological context in which portfolios and ePortfolio practice developed. Consequently, the purpose of collecting this data was to establish how rules (e.g., laws, regulations) and procedures (e.g., ePortfolio course notes, syllabuses, to-do lists) were shaping ePortfolio practice during teachers’ training and subsequent employment. All digital artefacts were added to the software *Atlas.ti*, a Computer Assisted Qualitative Data Analysis (CAQDA), together with selected parts of the paper documents I had scanned or photographed relevant to the aims of my research.

The second method I used was the initial survey to collect information on potential participants. The aim was to inform my research with their sociological variables (age, gender, personal background). This initial survey was adapted to the different groups of participants (see section 3.2.2) I wanted to study. Each group had a set of common general and socio-cultural questions (age, gender, personal background, and ePortfolio experience) that would help me draw a picture of their sociological and historical background in line with a CHAT approach. One set of questions was targeted specifically at participating teachers – the ‘subject’ element in the ATePP model – as an initial document of their present and past experience developing their ePortfolio practices. These questions principally addressed the ‘tools’ they had used or were using, their perception of their former and present ePortfolio practices (‘object’). Another set of questions was directed towards the teachers’ educators and supervisors, again as initial documentation of the other members of the ‘community’ and how the ‘division of labor’ was

organised within the two triangles (at the workplace and during teacher training) of the ATePP model.

I chose semi-structured interviews (the third method) as my main tool, because my primary goal was to give participants a ‘controlled’ freedom to express their voice – controlled, because throughout each study, the main questions for each kind of participant are the same to enable a level of comparison, while also retaining the caveat that ‘likeness is not proof’. The purpose of the unstructured part of the interview was twofold: to ensure that I stayed open during the interview to investigating unexpected paths down which participants wanted to go, while staying within the broader parameters of the research questions; and to enable me to adapt the way I was running subsequent interviews after the analysis of previous ones. Although semi-structured interviews provide participants with a relative freedom in terms of what they are ready to reveal about themselves when answering the questions, they are not a tool to analyse what is really in the interviewees’ mind. An interview produces a “particular *representation* or *account* of an individual’s views or opinion” (Byrne, 2011, p. 209). Moreover, the dialogue in which interviewer and interviewee participated during the interview was in my view a way of allowing the participant to recall the ‘motives’, the ‘goals’ and eventually the ‘conditions’ that pertained to the development of their ePortfolio practice as a suite of ‘operation’ → ‘actions’ → ‘activity’. As explained in Section 3.3.2, the internalisation of ‘operations’ into ‘actions’ diminishes the perception and memory of what the ‘operations’ were to achieve the production of ePortfolio practice (the ‘activity’). Semi-structured interviews give both interviewer and interviewee the freedom to spend more time on a question or return to previous questions if they think that more information should be given or acquired. The interviews I made lasted between 60 to 90 minutes, and were audio recorded on an iPad. During the interviews, I wrote field notes (on the same iPad or on paper) on points I felt were interesting at that moment in the discussion. To capture the maximum of synchronised information I used software on my iPad that links each piece of writing to what is currently said and recorded on the machine. This was important to ensure that my notes were in tune, later, during the data analysis. The main questions asked to participants are listed in Appendix 8. The questions were formulated to ensure that participants’ answers covered the different elements that form the ATePP model (subject, object, tools, rules, community, and division of labour). Questions were also designed to record elements of participants’ PEOU and PU of ePortfolio practice.

Within the initial survey, I asked whether I would be able to access participants’ past and present artefacts that formed their ePortfolio practices. When access was granted prior to the

interview or when artifacts were presented during it, the material was used to inform the discussion; when the material was provided subsequent to the interview, I was able to use it to compare, contrast and reflect on participants' claims. The collection of this material whenever it was possible corresponded to my fourth method of collecting data for this study.

Collecting data from different sources ensured there would be elements to cross-check the findings after data analysis. In this research the trading to access the different fields was difficult and each time it was explicitly stated by most of the gate keepers that only one-time access was granted and all data had to be collected on this occasion. This is also a condition of a good study design emphasised in literature about research design such as in Rowley (2002), Yin (2013), or Zainal (2017).

### 3.3.5 Data analysis

To analyse data under the lens of the ATePP model, I considered two essential primary points. Firstly, when observing the links in an activity system, it appears that three out of the six elements influence directly all the others: (a) the subject, (b) the object and (c) the community (Figure 3-10). Consequently, these elements became focal points for my data analysis.

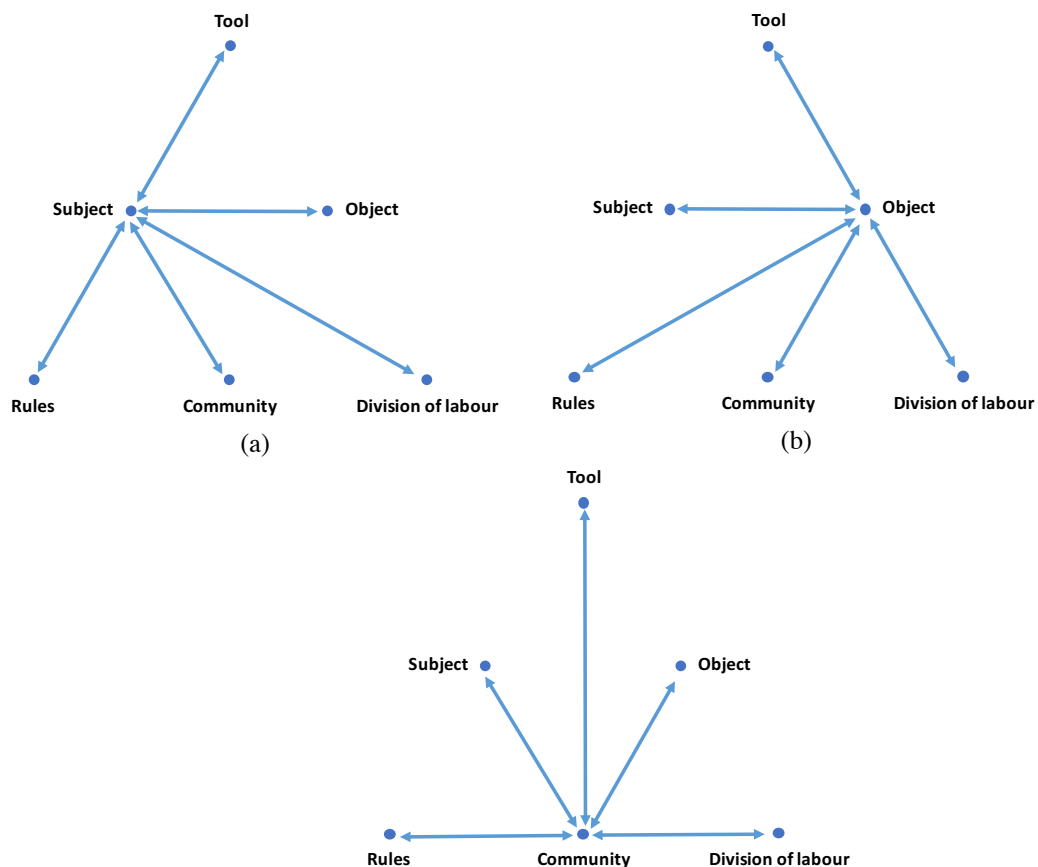


Figure 3-10: Three main elements that influence all the others based on Engeström (1999)

Secondly, Engeström (1999) suggests that understanding tensions between the different elements is the key to improving the whole system, describing four types of contradictions (Table 3-3).

Types of contradictions	Example
<b>Primary</b>	Inner conflicts within each node of the AT triangle. For example, rules designed to facilitate a task that are too complicated for users to apply
<b>Secondary</b>	Contradictions between nodes of the AT triangle. For example, a conflict between the way that tools are used and the rules that explain how to use them
<b>Tertiary</b>	Tensions/disruptions that occur when a new/more advanced form of the activity co-exists with an older one. For example, the use of a paper-based and electronic portfolio.
<b>Quaternary</b>	Contradictions between two co-existing activities. For example, when an ePortfolio is used simultaneously for assessment and to record truthful and personal achievements

Table 3-3: Four types of tensions possible in the CHAT model, adapted from Engeström (1999)

These contradictions and disruptions in the activity system or between activity systems underpin the development of innovation and learning. This vision of learning considers it as something happening locally, rather than imposed or driven from above (Engeström, 2001). Contradictions can be observed only when the activity system is studied within an historical approach through which researchers may be able to study the system over a long period (Sundaramurthy et al., 2016; Montoro Sanjosé, 2012; Waycott, 2004). In my ATePP model, given the limitations around access which did not allow me to access each field of data collection more than once, I was not able to record and analyse the origin and engage with the concepts of contradictions. Therefore, I describe the disruptions observed or those which emerged from my data analysis as ‘tensions’ rather than using the more complex concept of ‘contradictions’. I regard these tensions as ‘external’ to the subjects (the teachers) – in that they are shared by all the teachers, rather than being the result of individual teachers’ personal constructions – and as having the same influence on the object (the transfer or the maintenance of ePortfolio practice). The reification of these external variables by each teacher generates ‘internal’ responses, that influence subjects’ personal perceptions about using ePortfolio and engaging with ePortfolio practice. These internal responses have their roots in the perceived usefulness of ePortfolio practice and perceived ease of use of the ePortfolio management

system, which I analyse using the TAM-derived elements of the model I have devised, ATePP. The rationale that underpins this element of my data analysis is to identify and explore the internal conditions that facilitate or block transfer of teachers' ePortfolio practice.

Each of these different sources of data was analysed, keeping in mind the particularities of each type, and then, whenever it was possible, all data were entered into Atlas.ti for further investigation. Before the interviews took place, I started to analyse all data collected with my first method to put together my representation of the historical and sociological background in each settings. The result of this documentary research is presented in Appendixes 12, 13 and 14. This process enabled me to further develop my existing knowledge of the history of portfolios and ePortfolios (see Appendix 1) as well as looking more closely at the specific histories from these individual contexts. Data sources were cross-checked against each other to present the most accurate historical background for each country and institution within which participants were working or had studied. Whenever it was possible, telephone calls were made to discuss and confirm my representation of the context of teacher education and ePortfolio's historical introduction and use in each setting. This exploration of the sociological and historical background took place during the whole period of this study.

I started the analysis of the interviews by listening to each of them a few times, and taking general notes as I did so, recording my responses before checking them against my field notes. This helped me to recall information and my feelings about each interview, as well as giving me an opportunity to notice details I might previously have overlooked. Following this, I anonymised the data and transcribed the interview with a word processor using code to keep as much information as possible about the perceived mood of the interviewees, the silences, and some of the body language I had noted in my field notes.

The aim of the data analysis was to build the activity system based on ATePP for each setting and then to compare them, looking for differences and points in common. The collected data was considered in relation to each element of the different triangles. Within each interview, I sought information about participants' ePortfolio practices ('object'), about the 'tools' they used to develop them and how they used them; but also about participants' perceptions on their practice ('subject'). The analysis of data centred around the concept of the 'object' (how each participant was defining concepts such as 'ePortfolio', 'ePortfolio practice'). As already noted, 'subject' and 'community' are defined by the fact they share the same 'object' (Kuutti, 1996),. therefore comparing each participant's understanding of the object of the system and the 'motives' that have driven their engagement with developing ePortfolio practices was

important. This is significant because the ‘motives’ that generate the activity also condition the ‘goals’ that result in the ‘actions’ taken by participants to develop their ePortfolio practices (see Figure 3-4). Comparing a participant’s ‘motive’ with the ‘goals’ and ‘actions’ they remember having done or are doing in the development or possible maintenance of their ePortfolio practice is important. For example, whether a teacher’s representation of their ‘motive’ for continuing with ePortfolio practice is to document their learning for themselves or as part of a supervised activity, the ‘action’ of reflecting on proof of learning has a different meaning and symbolic perspective in each situation; in the second scenario, the style of the reflective practice could seek to be more formal and please a third party reader than the first one. If participants’ ‘actions’ are analysed without considering their own definition of the ‘motive’ that generates the activity in the system, conclusions drawn from the data may be inaccurate.

All information collected during the interviews was considered in relation to the three layers of activity represented in Figure 3-4. This information was then analysed with data regarding the ‘rules’ and the ‘division of labour’ in the ATePP model, to determine how formal and informal instructions, and the roles played by the different members of the ‘community’, supported the ‘operations’ and ‘actions’ participants described having engaged with. The analysis of participants’ former or present ePortfolios, and the discussions I had with them about their ‘actions’ and ‘operations’ in their ePortfolio practice, was also important to compare with findings from the other sources of data collection. This phase of analysis focussed on the first sub-system formed by the triad ‘subject-tool-object’ (see Section 3.2.3 above) and particularly on the ‘subject’, one of the three main elements that influences all the others in an activity system (see Figure 3-10).

After this first phase of analysis, I started looking at my data to document the elements forming the second sub-system. This triad (‘object-community-division of labour’) focusses on how members of the community collaborate regarding the second main element that influences all the others in an activity system, the ‘object’– the development of the subject’s ePortfolio practice. What each stakeholder (teachers, educators and supervisors) said was analysed, to determine how each community member perceived the roles they played, and the roles played by others. In Section 2.3.1, I noted that mixed feelings are a general finding in much research on ePortfolios and that learners in general explain that negative feelings are caused by a lack of understanding of the roles played by the different ePortfolio stakeholders (e.g. Oakley et al., 2014). Therefore, I paid particular attention to this, looking for evidence to contradict or support these findings.



The next phase of data analysis was conducted to document the third sub-system formed by the triad ‘community-rules-subject’. Information about rules was retrieved from the documents gathered with the first method of data collection but also from what participants said during the interviews. My attention during the analysis of this triad was particularly focussed on the process of how the rules were reappropriated by the subject and the community, and how they perceived and described this process. Evidence of its existence was also sought also in the artefacts participants submitted to me. In this phase, the focus was put more strongly on the voice of the other stakeholders (educators and supervisors) than was the case in the first phase of analysis. This allowed me to develop a picture of what the ‘community’ brought to the activity system as the third main element that influences all the others (see Figure 3-10). A final phase of data analysis looked at the tensions between the different elements within each activity system, between the two systems themselves, and also between each of their sub-systems.

One important issue I had to face during data preparation for analysis was that I had been working in multilingual sets. To keep participants within their comfort zones, I had allowed them to choose which language the interview would be conducted in. This was either their mother tongue (German in Austria, and French in Switzerland and France); or English. This could cause two biases in the interpretation of data which are:

1. when native French or German-speaking participants choose to do the interview in English, do they have the vocabulary to express what they really wanted to say?
2. how do I proceed with non-English interviews? Do I translate them all into English before the analysis? How can I be sure that the words I will use for my translation convey the same meaning they wanted to express?

My CV shows that I have a good command of German, French and English, with German and French as my native languages. But my personal experience of working in different languages and different cultures has shown me that the way of thinking in each language is unique, and that accurate and full translation requires higher professional skills as well as a knowledge of languages and culture. This practical experience is also reported by Birbili (2000) or Halai (2007). For example, in French there are at least five different words to express the notion of ‘skill’<sup>7</sup> with slight differences, which is significant, as ‘skill’ is a keyword when we speak about ePortfolio and assessment.

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<sup>7</sup> ‘Skill’ could be translated into French with different words, such as ‘*compétence*’, ‘*savoir*’, ‘*savoir-faire*’, ‘*capacité*’, ‘*habileté*’, which have subtly different meanings

The problem of multicultural and multilingual study is little addressed in published literature and proposed solutions usually deploy the help of professional translators. For example, to analyse interviews with patients about palliative care in Europe, Larkin et al. (2007) recruited a dyad of Masters level students for each language spoken by participants. The method used in Larkin's paper was to ask each dyad to work separately and then translate the work of the other member back to the initial language for cross checking (see Edwards, 1998 or Usunier, 1999 about this forward-backward translation method). Hiring good translators is not enough, as their knowledge or their absence of knowledge of the studied field also influences the quality and the accuracy of the translation (Denzin and Lincoln, 2000). Furthermore, Kapborg and Berterö (2002) suggest that interpreters can even threaten the validity of the research and to mitigate the problem they "(...) should not only have the required linguistic abilities, but also be trained in the research field" (p. 52). For this self-funded study, it was not conceivable to hire professional translators. And even so, as noted above, using professional translators does not ensure that the translation fully reflects the interviewee's mind.

These potential drawbacks were identified at the beginning of my research and my reflections on them were a vivid element in my thinking throughout the data collection and data analysis processes. To overcome these translation issues, I took the following methodological decisions:

1. participants could choose the language in which the interview was run;
2. if they chose English, they were free to switch to their mother tongue at any time;
3. where something was unclear, participant or interviewer could seek clarification in the language that best suited the participant;
4. transcriptions of the interviews would not be translated into English before data analysis;
5. I would rely on my language skills and knowledge of the field of study to interpret data in the text;
6. when necessary, I would contact participants after transcription to check any points that remained unclear or possible misinterpretation;
7. participants could comment on the transcript of their interview if they wished so.

As soon as the transcript of an interview was made, I imported it to Atlas.ti<sup>8</sup> for analysis. The advantage of CAQDA software is to provide a database system to store and maintain the necessary chain of evidence (Yin, 2013). In Atlas.ti I started to code data as I did with the other sources of information. I will later describe my coding method to encode both the interviewee's voice and my own voice during the interviews.

With the introductory letter participants received before the interview took place, they were asked to give me access to the artefact/s of their previous and/or actual ePortfolio practice. None of them provided anything before the interview. Subsequently, they were asked again during the interview, and one last time, three weeks after if necessary. The aim was to collect evidence of what participants had discussed about the transfer of their ePortfolio practice from their teacher training to the work place. Moreover, the idea was to obtain data in order to develop a historical analysis of their practice. Seven participants agreed to grant me access to artefacts they were producing in the workplace and/or artefacts that they had produced during their initial education. All digital and scanned copies of the paper-based documents were imported into Atlas.ti for coding and analysis.

### *3.3.6 Coding the collected material*

As Patton (2002, p. 432) claims “[n]o formula exists to transform data into findings” but encoding information to compare, uncover relationships, and to find a common ground among a range of data is a method widely used for qualitative data analysis. For Saldana (2015) “Data are not coded – they’re recoded”, meaning that we have to analyse data in an iterative process “(...) comparing data to data, data to code, code to code, code to category, category to category, category back to data, etc.” (p. 67).

My coding methodology followed Saldana's (2015) two cycles model, where the first cycle of coding takes place directly after data collection, while the second cycle comes long after the first cycle and “if needed, [provides] advanced ways of reorganising and reanalysing data coded through the first cycle methods” (p. 233).

For Patton (2015), since “each qualitative study is unique, [then] the analytical approach used will be unique” (p. 522). Consequently, I adapted the two cycles model to my personal context in the following way:

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<sup>8</sup> I have also used nVivo because of the type of data representations it was offering that Atlas.ti was not.

- the first cycle: to search for elements that answered the main ontological question of my research – the nature of any transferred ePortfolio practice; teachers’ perceived usefulness of this transfer; transfer of ePortfolio practice from teacher training to the workplace; the nature of educators’ and supervisors’ expectations of transfer.
- the second cycle: to find elements that answered the epistemological questions addressing understanding and theories of knowledge on observed transfer practice: what factors influenced the transfer, including the teachers’ training and professional environments.

During the first cycle of coding on Atlas.ti, I used two main coding methods simultaneously: ‘InVivo’ and ‘Values’. InVivo coding summarises data by encapsulating a sentence or a complete part of an interview in a particular word or a short phrase. These words and phrases are taken directly from the language used by the interviewees. By doing this, the coding preserves words specific to the interviewee, and retains, for instance, the jargon they use when discussing education or specific expressions they employ to describe how ePortfolio practice is embedded in the digital culture (e.g., blogger, wiki, Leap2A, artefact). This method is often used in GT (Corbin and Strauss, 2015; Charmaz, 2014).

Values coding focuses on identifying interviewees’ values, attitudes, personal beliefs or representations of the world (Gable and Wolf, 2012). Values coding was used not only on interviews but also on the artefacts participants granted me access to and the texts I had collected from the field. Participants’ responses during interviews is an expression of their own values, understanding or beliefs, which may not be objectively true or accurate. Consequently, using values coding for each type of data I collected seemed to me paramount in order to (re)establish the relationship between the participants’ perception of the context within which their experience took place, and the actual reality of it, which was formalised by norms, rules, procedures.

During the second cycle of coding on Atlas.ti, I focused my coding on two: ‘Emotions’, ‘Values’, and ‘Pattern’. Emotion coding tries to perceive the emotions of the participants when they are answering personal questions. For Corbin and Strauss (2015), emotions and actions are intertwined and cannot be separated. For Saldana (2015), the mood of a society (what he calls the ‘ethos’) is hidden behind individual emotions. This echoes Durkheim’s principles on morals and emotion (for more development see e.g., Durkheim, 2005; Fish, 2017; Held et al.,

2017). Pattern coding was used in the final iteration coding process to start making links between concepts found in the data. I used this at the end because “[they] not only organize the corpus but attempt to attribute meaning to that organization” (Saldana, 2015, p. 235). The meaning of data cannot emerge at the first sight but only after a long iterative work, which pushes the researcher to go back to the initial data to check the found patterns before building a theory, if needed. I used this form of analysis throughout the case studies, therefore ensuring consistency in my usage of the codes. Whenever I created a code for the first time, I recorded a definition within the Atlas.ti notebook for reference. An example of the transcript is provided in Appendix 9, and an extract of coded interviews in Appendix 10.

Figure 3-10, shows an example of a graph realised after the coding of five interviews of Swiss teachers. Each graph was printed on a transparent sheet. Putting the sheets together on top of each other subsequently gave an overview of when negative or positive statements were made during the interviews on ‘perceived usefulness of ePortfolio practice’. Each square represents 20 seconds of an interview and the colour (dark to light red or green) represents the intensity of the emotion (positive = green and negative = red) when the participant made their claim. Because all the interviews were semi-structured this implies that the questions were asked in the same order and each interview had the same time format. Thus, it was easy to catch interview moments where a group of participants were sharing the same or different mood, opinion, perception. Having observed this, it was also easy to get back to the transcript to verify and work again on the data to identify common points and difference and reflect on this.

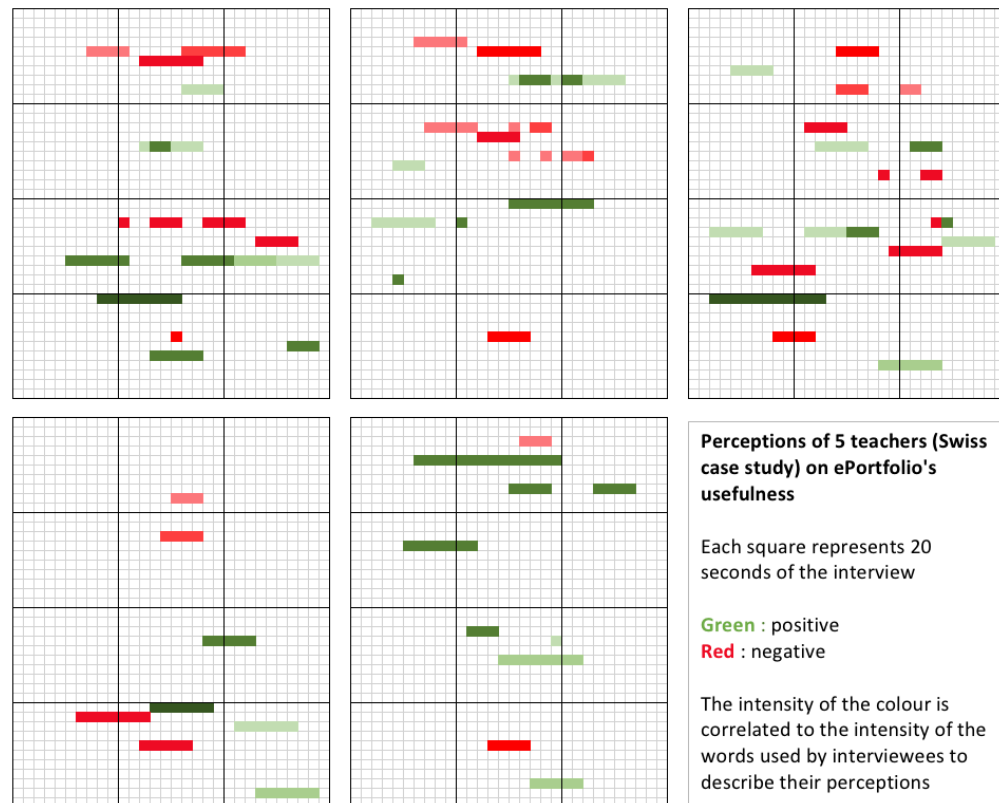


Figure 3-11: Example of a graphical analysis of five interviews

### 3.4 Ethical considerations

The field of my research was spread over different countries with different codes of conduct regarding research with human participants. Consequently, I had to take into account both general and location specific ethical considerations and to contextualise my ethical position so that it satisfied both the requirements of the Open University and the UK, and those of the countries of the study participants.

All the data collected from individuals and institutions was treated in line with the UK Data Protection Act 1998 (DP) (UK Parliament, 2005). The data was stored on my computer, and accompanied me on my data collection trips in France, Switzerland and Austria. I also followed the rules of the Federal Act of June 1992 on Data Protection (Swiss Federal Council, 2014) and the Austrian Data Protection Act 2000 (Bundeskanzleramt Österreich, 2017)<sup>9</sup>, which are similar and do not contradict the DP.

<sup>9</sup> A non-official translation of in English can be found here:  
[https://www.ris.bka.gv.at/Dokumente/ErV/ERV\\_1999\\_1\\_165/ERV\\_1999\\_1\\_165.pdf](https://www.ris.bka.gv.at/Dokumente/ErV/ERV_1999_1_165/ERV_1999_1_165.pdf)

The code of conduct I used during my research followed BERA guidelines (2014) and The Open University (2014), and received a positive response from the university's Research Ethics Committee (see Appendix 11). In addition, I followed the rules of CDHEP (*Code d'éthique de la recherche pour les Hautes Écoles Pédagogiques*) (CDHEP, 2002), and the *Richtlinien zur Sicherung guter wissenschaftlicher Praxis* (PH Wien, 2014), plus the French, Australian and New Zealand equivalents, in relation to the data collected in each of those countries.

Throughout the whole research process I had to deal with common ethical issues, such as those listed by Hammersley and Beiera (2012): minimizing harm, respecting autonomy, protecting privacy, treating people equitably. The OU's HREC divides the Ethical Principles for Research Involving Human Participants (The Open University, 2014) into six areas which I reinterpret as follows:

- Stay in compliance with the protocol
- Get valid consent from each participant
- Work with openness and integrity
- Foster the maximisation of benefit and the protection from harm
- Make the data confidential and protect participants' privacy
- Respect professional codes of practice and conduct

In the next sections I will present my personal reflections on these issues and link those principles with my experience during my research. From my own point of view, however, I was conscious that I needed to avoid any personal bias in my interpretation of what participants told me, ensuring that I listened honestly to what they told me rather than hearing what I wanted to hear. Cross-checking the interview data with other data collection methods (such as the ePortfolio artefacts, or their responses to my questionnaires) was a further way of reassuring myself that I was minimising any potential distortion on my part.

#### *3.4.1 Participants' expectations*

Just as Bourgeois (2011), working in the ethnographic tradition, is concerned about exposing the reality of the living conditions of his subjects, so I was also concerned about revealing to a group of participants I was interviewing what another group had said about the

same topic or about the former group, lest this influence or shape their responses. For example, it frequently happened that educators wanted to know what their former students, now qualified teachers, thought about their teaching and the way they were taught to use ePortfolios. For ethical reasons, principle 4 – protection from harm – and 5 – confidentiality – (The Open University, 2014), I was not allowed to give information about other participants' data or identity. But I found that not answering such questions during interviews created a 'shift' moment where it seemed to me that the relationship between the researcher and the interviewee participant had changed. In these situations, I noticed that the researcher's skill in focussing on the current interview and valuing the voice of the participant present was a way of keeping alive the indispensable trust between the interviewer and the interviewees, as was reassuring them that they would have access to the findings of my study.

### *3.4.2 Data protection*

Other ethical issues I encountered were connected with data protection. The nature of my research project required the use of IT to collect, store and process data, and to communicate with participants.

The tools I used to organise my research and collect information were a mobile computer, a tablet (iPad) and a smart phone (iPhone). While it is possible to encrypt the whole content of the hard disk or a particular folder on the computer, neither the iPhone nor the iPad offer the same feature. Although the access to my computer requires a password, combining capital and lower-case letters, digits and special characters (generally considered highly secure), this is not the case with the iPad or iPhone, which are protected by a four-digit code<sup>10</sup>. This is an issue if one of the devices is stolen or lost, because the confidentiality of the information may be jeopardised. While a feature active on all my devices allows me to erase all data remotely, this only works if the machine is connected to a network and the feature can be turned off by the person who has found or stolen the machine.

I also used web services such as Skype for online interviews; Survey Monkey for questionnaires; Dropbox to store material (e.g., files, forms); Evernote (e.g., for notes, field notes, reflexions, etc.); and Mindmeister for reflecting with mind-maps. The use of such services raises ethical considerations about data ownership and the insurance of private data protection. As Jones (2011) observes, recommendations on these particular issues are few and

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<sup>10</sup> Since iOS 10.3 the passcode can be 4 or 8 digits, which increases the security of the access to the device. But at the time I started research only 4 digits was the rule.



studies addressing online research are work in progress. It is important for the researcher to adopt a reflective position, in order to take the correct and least harmful decisions in these matters. On this issue, in response to principle 4 – protection from harm – and 5 – confidentiality – (The Open University, 2014), my personal position was:

- to encode any file, folder or data that would be stored online and also to avoid any services which were stored outside Europe;
- to store online only anonymised information and keep the key that permitted me to link data to the source on paper rather than on my computer;
- to collect and destroy immediately any of the participants' data which might be collected online, and to store them offline for treatment and anonymisation;
- to store and/or publish online only general reflections with no information about the individual or specific source;
- to avoid, or at least be suspicious of, any free service on the web;
- finally, to encode any notes that were stored or sent on the web.

The only issue I was not able to solve was the interviews on Skype. I had no assurance that the data could not be collected, or the conversation heard and/or recorded by a third party during the conversation. When it came to my interviews with French participants, I had to adjust my use of this particular technological tool, because the code of practice in France is to exclude the use of any product that stores information outside the national territory. Therefore, Skype is forbidden in many institutions (Foucart, 2005) and other open source products are used in its place. Consequently, for this part of my research, I used RenaVisio<sup>11</sup> (for interviews) and FramPad<sup>12</sup> (for exchanging notes with participants) instead.

### *3.4.3 Openness and integrity*

Working with openness and integrity is the third principle of the HREF's recommendation (The Open University, 2014). Even if written results simply present facts, using a 'naturalistic' approach (Hammersley and Atkinson, 2007, p. 4,7,9), publishing results

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<sup>11</sup> <https://www.renater.fr/voix-et-image?lang=en>

<sup>12</sup> <https://framapad.org/>

about observations may change the field and modify social relations between participants; some fragile equilibrium in formal and informal negotiated relations may be broken.

Given these risks, I felt that the purpose and scope of my research needed to be clearly defined and ultimately valuable enough to be balanced against these potential drawbacks. On the other hand, I was aware that having overly specific targets in mind could influence my observation and orientate the discussion in the following chapter, a question Hammersley and Atkinson raise as ‘to deceive or not to deceive?’ (2007, pp. 53–58).

One of my personal experiences of this was an interview I was able to make in the UK. The organisers of a conference at which I was invited to speak kindly facilitated access for me to an educator in social care at the university. The usual criteria check suggested that this person was a suitable recruit for my research. I also verified that after my interview, I would be able to interview graduate students and their supervisors. Ten minutes after the interview started I had the feeling that we were talking about a perfect project but not about a past experience. It would have been rude to interrupt the interview but the truth was, we were talking about my interlocutor’s dream of embedding ePortfolio practice in the curriculum, and there were neither students nor supervisors to interview afterwards. This participant wanted, above all, to have the opportunity to discuss his project with an ePortfolio expert – aka me.

In this case, we were both in a ‘deceive’ situation. As it was difficult to find coherent groups of participants to build my case studies, I might have been tempted to use the information collected during this interview and then deceive my community of readers with honest information which nevertheless did not fall within the constraints of my research. On the other hand, this participant deceived me by pretending to deliver information that might interest me while pursuing a different private goal. In such a situation my position was to stay on the path of integrity and openness, without judging others’ reasons and actions.

Reflecting on these issues, I had to bear in mind that:

1/ my exploratory study, alongside informal communication with educators and institutional policy makers, indicated interest in such research, with the aim of adapting or improving ePortfolio practice in general;

2/ as a researcher I had to remain neutral, and adopt clear and documented methodologies throughout the research;

3/ I had a responsibility to respect my participants' voices, presenting facts as they shared them with me, telling their stories as much as they served the purpose of the research;

4/ as a researcher embedded in society, and a particular professional field, my research should contribute to developing knowledge about ePortfolio practice, and indicate potential benefits for educators' and institutional policy makers' professional practice.

Studying professional practice forces the researcher to take into account local business policies: confidentiality acts, nondisclosure or particular ethical policies existing in one type of business or in a company in particular. Those local constraints can become an issue for the researcher, who then has to establish a balance between local constraints and the freedom and independence needed to produce a truthful and complete study of the field. The example I gave above was not the only moment where I was asked to trade my point of view on ePortfolios, give a lecture, or run a seminar in exchange for being granted access to the field of research, by interview teachers, educators or supervisors.

To avoid personal bias and to foster openness and integrity, I often discussed my research openly with peer researchers and independent third parties to listen to their feedback, in addition to the personal guidelines and limitations I developed in following the framework and the methodology I described in previous chapters. However, sometimes I found a tension between openness and integrity. For example, was it ethical to accept trading consulting for access to participants or even in certain circumstances to suggest such a trade? Reflecting on this, my position is that the time I have decided to give, the ideas I have shared, and the knowledge I have spread on these occasions contributed to fostering the development of my field of research on ePortfolio practice. I always considered these actions as participation in building a professional body of knowledge, in which participants, myself included, nourish each other with mutually enhancing strengths and ideas.

#### *3.4.4 Participants' consent and ethics protocol*

In line with the HREC's second principle, and as I have already mentioned, each recruited participant had received, signed, and returned a consent form (see Appendix 6a-6c) before their inclusion in the study.

I requested that participants share with me important information about their own and personal ePortfolio practice, as well as their personal feelings about their professional world; about their training; their professional practice; about their contexts; about their peers and

colleagues; etc. This implies that during data collection participants may sometimes have revealed, on purpose or accidentally, professional information that could jeopardise their obligations to preserve the interests of their employers or be harmful to third parties or other participants.

To address this, I put a high importance on accessing the field and collecting data in the most transparent way for participants. Whenever it was possible, I sent a draft of the interview to ask for their comments if they felt able to provide some. I also reminded each of them without fail of their right to access their own data and to withdraw it from the study at any time before publication.

I did not receive any particular comments or post-interview feedback from participants. None of them were compensated, financially or otherwise, for the time they gave me, but I hoped that by reflecting on their ePortfolios, they would benefit from their participation in my study. In late 2015, however, two came back to me and asked to withdraw from the study. In line with my ethical code of conduct, I acknowledged and accepted their request, without pursuing the reasons for their withdrawal. From my point of view, I felt it would be too intrusive to question participants about the use of one of the rights I had given them when they entered my research. Nevertheless, it would have been interesting to know their reasons to avoid having something wrong in my analysis or in my questions *per se*. On the other hand, while no others mentioned any issue about the interview or its transcript, or the access to their data, I thought I was not creating a bias by not asking them about the reasons for their withdrawal.

All the data from these two participants was destroyed and their names were also removed from my field notes. I sent them a letter acknowledging the deletion process and thank them for having taken part in the study. However, their withdrawal meant that I had to reprocess part of the data analysis and rewrite comments where their data might have been used. The main difficulty for me was trying to forget what those two participants had said. One in particular had shared ideas with me during the interview which had been particularly useful, but to which I was no longer able to refer: this was frustrating.

Looking back on this process overall, which confronted me with some unexpected challenges as well as highly rewarding experiences, I can conclude that I think my position during the research was responsible and respectful of all the stakeholders who engaged with me on this study, and to all the future readers of this thesis. In the next chapter I will present the three settings where I collected data, in France, Switzerland, and Austria.

## Chapter Four

### Three case studies

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Between 2014 and the end of 2016, I assembled the three coherent groups of participants that formed my case studies. Following an agenda with a clear calendar was difficult: I interviewed participants I had recruited whenever there was an opportunity. Some institutions granted me access to their collaborators only if interviews were grouped and organised at their location. Visits to universities in Australia, New Zealand and the UK enabled me to collect data but not to create a coherent cluster of the three categories I needed. For example, in Auckland, I was able to interview two teachers, and their supervisor, the deputy head, but their educators declined my interview request.

This story repeated itself many times during data collection, but in late 2015, new contacts finally enabled me to create three case studies in three different countries (France, Switzerland, and Austria), all within the same context (teacher education). A full account of each country's educational system and organisation of teacher training may be found in Appendices 14, 15 and 16. In the following sections, I present the specific context for each individual study.

#### 4.1 The French case study

The French case study took place in north-eastern France, at an institution where trainee teachers can use the Lorfolio, an ePortfolio management system developed and launched by the Regional Council of Lorraine in 2007 (see Appendix 12). Besides Lorfolio, they have access to another ePortfolio platform developed in-house. ePortfolio practices are embedded in the institutional curriculum during the second year (M2 MEEF) of teacher training and are also used to document levels of competences attained during the two-year traineeship.

A contact I made through conferences on eLearning and ePortfolios facilitated my access by introducing me to gatekeepers who granted me access to the field without conditions. Two educators at the institution provided the email addresses of ten of their former trainee teachers. Of these ten only three responded positively; two supervisors were contacted and agreed to take part in this research. Table 4-1 summarises the elements of the data collection for this case study.

The period when I started accessing the field was just before exams and everyone was under stress: consequently, the time available for the interviews was very restricted. It was my

first case study after the pilot and, I had adapted my approach and methodology: my initial field notes record my apprehension about employing new procedures and the stress of not knowing whether what I was doing was the right thing. I collected less material than for the next two case studies, and because I had to conduct the interviews sequentially, I had no time to analyse data from one before beginning the next. Furthermore, I was not able to send the participants either the transcript of the interview or a post-interview questionnaire until much later: although I sent them retrospectively in 2015, this was certainly too late for receiving any comments from them. The small number of participants made it difficult to balance age and gender in each group. Nevertheless, the analysis of this data provides relevant information to compare with the other two case studies.

Code	Position	Gender	Age
FRT01	Teacher – Maths	F	22
FRT02	Teacher – Maths	F	24
FRT03	Teacher – IT	F	23
FRS01	Supervisor of FRT01 and FRT02	F	41
FRS02	Supervisor of FRT03	M	39
FRE01	Educator	M	45
FRE02	Educator (ePortfolio project leader)	F	39

*Table 4-1: Participants in the French case study*

All the interviews took place during the last three weeks of June 2014 over the phone (2) or with RanaVio (3) or Skype (1). Two participants (FTR02, FTR03) allowed me to access the artefact produced through their ePortfolio practice. Only one participant (FTR02) returned the post interview survey. All teachers worked in higher secondary level schools.

## 4.2 The Swiss case study

### 4.2.1 Data collection in Switzerland

The Swiss case study took place at a teacher training institution in south-west Switzerland (see Appendix 13). When lecturing there on a six-month optional course for trainee maths teachers, I had observed that ePortfolio assessment was part of the curriculum for trainee IT teachers. Another optional course at the institution was also developing ePortfolio practice, but this had only begun in 2014, and its span of experience was therefore not mature enough to meet my selection criteria. After contacting the two educators on the IT teaching programme, who agreed to participate in my research, I was then able to contact and interview 5 former

trainees, now practising teachers, who had built their ePortfolios during this programme. I was also able to meet and interview 2 supervisors in the schools where the 5 teachers were working. Table 4-2 summarises the elements of the data collection from the Swiss case study.

Code	Participants	Gender	Age
CHT01	Teacher – IT and history	M	28
CHT02	Teacher – IT and maths, Head of IT department	M	42
CHT03	Teacher – IT	M	28
CHT04	Teacher – IT and maths	M	27
CHT05	Teacher – IT and biology	M	32
CHS01	Supervisor of ST01, ST03 and ST04, Deputy Head and economics teacher	F	45
CHS02	Supervisor of ST02, Head Master	M	49
CHE01	Educator at HEP <sup>13</sup> – main teacher for IT teacher education (higher secondary level)	M	43
CHE02	Educator at HEP – teacher for IT and general teacher education (lower and higher secondary level)	M	49

*Table 4-2: Participants in the Swiss case study*

Semi-structured interviews were made face to face at the workplace. One interview was conducted by phone, the participant having moved to another canton the month before the meeting was due. This interview was also recorded digitally.

In spring 2016, I sent the transcript of each interview to participants for feedback, so that they could comment, and I could ask for clarification if something seemed wrong, together with a questionnaire about possible changes in their ePortfolio practice following my interview.

During the collection of data for the Swiss case study, I introduced MindMaps to organise the data I was recording, drawing a MindMap as the interview progressed to synthesise the information during its collection. At the end of the interview, I presented my MindMap to the participant and checked for their agreement on what had been said. This was a new tool that I had not thought to use for the first case study in France. Swiss participants found it particularly useful to quickly have an overview of the one-hour dialogue we had together.

As interviews took place in rooms where no computers were available, accessing any artefacts or ePortfolios participants talked about was not possible. Subsequently, after a first

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<sup>13</sup> HEP: *Haute École Pédagogique* (Teacher training school)

data analysis and within two to three weeks after the interview, I contacted each participant to ask if they could provide access to personal data regarding their actual or past ePortfolio practice. I also collected, before, during, and after the interview all documents regarding the institutions participants were working for and all the documents they brought with them and agreed to share with me (e.g., lesson plans, artefacts created for their ePortfolio, legal documents).

All interviews were conducted between March and May 2015, taking place at each participant's place of work, except for the one already mentioned which was conducted by phone (CHT05). Three participants (CHT01, CHT03 and CHT04) allowed me to access the artefact they produced through their ePortfolio practice, and the same three participants returned the post interview survey. All teachers work in higher secondary level schools.

### 4.3 The Austrian Case Study

The Austrian case study was the last I ran, about two years after my first interview for the French case study. While it was possible to run consecutive interviews with the educators at the teacher training institution where they worked during a two-day visit in late 2015, most teachers and supervisors were interviewed later, in 2016.

#### 4.3.1 *Data collection in Austria*

An overview of teacher training in Austria may be found in Appendix 14. My case study took place at a tertiary education institute which collaborated with Vienna University at the time of my visit, and has now been incorporated into the Department of Educational Sciences. The syllabus runs for three or four years depending on the level at which the student will teach (primary, lower, higher secondary) and courses are postgraduates, except for teachers specialising in a particular subject (e.g., maths, science, IT) to be taught at secondary school level, who pursue their studies towards their MA and the teacher-training course simultaneously (see Appendix 14). The institution is situated next to a kindergarten, primary school, college and gymnasium (the names given to lower and higher education schools respectively). This situation makes the transposition of theoretical teaching to the workplace easy and immediate. Trainee teachers divide their time between learning and teaching.

Paper-based portfolios have been in use since 2000 and are compulsory for every student to record and reflect on their learning. Mahara, an ePortfolio management system, was installed and tested in 2012, and three cohorts of students have already been granted access to it. At the



time I visited, in October 2015, and until September 2016, students were able to choose to maintain and present a paper-based or an electronic portfolio. From 2017, paper-based portfolios have been abandoned: moving onto an ePortfolio has become mandatory for all students. The rationale behind this choice is sustained by the new syllabus for teacher training (Hamp et al., 2017), as described in Appendix 14.

Access to this institution was given by the fact that I had met educators there several times: we had already discussed ePortfolio practices and they were aware I was conducting research on their field of interest. Although I first proposed including their institution in my study in late 2014, it was only in October 2015 that it was possible for the interviews to take place. After several emails and discussions by phone, I was given a list of fifteen 'best representative' people in terms of ePortfolio practice within the institution, all of whom volunteered to take part in my research. I randomly selected five educators, one supervisor (the human resources manager), and one teacher, a former student now working as an English teacher in Vienna. I continued searching for other teachers and their supervisors and in spring 2016 was able to access three teachers and one supervisor who was working with two of them. Given the gender balance of my previous two case studies - in France, the majority of teachers interviewed were female; in Switzerland, all the teachers were male - I also tried to have, as far as possible, an equivalent number of male and female participants.

This institution advertised their collaboration on my research with a blog post and by asking me to give a short lecture on ePortfolios and about my research to a selected panel of four influential scholars from the institution and the University of Vienna. Table 4-3 presents an overview of all participants in the Austrian case study.

Data collection involved the following: a pre-interview questionnaire; semi-structured interviews; document reviews; passive observation. Seven people were interviewed (five educators, one teacher, one supervisor). All participants had provided me, through the questionnaire, with information about their position, background and personal ePortfolio practices, and assured me they were fulfilling the personal requirements for this case study.

The time-and-place for the interview was organised by my on-site contact, one of the educators who organised my time during my two-day stay. For each person selected for an interview, he sent me a short CV, explaining how they were enrolled in the ePortfolio project and their hierarchical level within the institution. All interviews were conducted in English apart from one with a supervisor who requested German. Whenever I or my interviewees

thought something was not clear, German was used to clarify the point. I was also able to observe a lesson in which the teacher showed entry level trainees how to place evidence of their learning inside their ePortfolio on Mahara. I completed my observation notes with an informal discussion (for opportunistic data ratification) with three random students to reflect on what just happened during the lesson and also to explore their feelings about using ePortfolios during their studies.

I also had several informal opportunities (meals, coffee breaks) to collect thoughts on teacher education and ePortfolio practice from other collaborators within the institution. On each occasion, to follow ethical principles, I asked whether it was possible to take note and quote what was said.

Documents collected for the Austrian case study were of three different types:

- Official State documents outlining laws on education and teacher training, as well as teacher qualification criteria;
- Official documents issued from the institution, such as syllabuses, paper-based and ePortfolio guidelines for the students, study planning, recommendations to students on how to maintain their ePortfolios;
- Educators, trainee teachers and graduate teachers' ePortfolios, at different stages of development.

Some of these documents were provided or found in an electronic format. All paper documents were scanned to facilitate their conservation and analysis.

The interviews with the first seven participants (Table 4-3) took place over two days in October 2015 at the teacher training institution studied. ATT02, ATT03, ATT04 and ATS02 were interviewed by phone in February 2015 (ATT02, ATT03), May 2015 (ATT04) and July 2015 (ATS02). Three participants (ATE01, ATE03, ATT01, ATT04) allowed me to access the artefact they produced through their ePortfolio practice. Three participants (ATE01, ATE03, ATT03) returned the post interview survey. All teachers work in higher secondary level schools.

Code	Position	Gender	Age
ATE01	Educator – TEL scientific researcher for Austria, one of the leaders of ePortfolio in the institution	M	47
ATS01	HR manager	F	58
ATE02	Educator – member of the group in charge of generalising ePortfolio practices throughout the university	F	48
ATE03	Educator – in charge of supporting students in developing (e)portfolio practice	F	47
ATE04	Educator – Foreign language teaching	M	38
ATE05	Educator – English department	M	43
ATT01	Teacher – English teacher in a secondary school, Vienna	M	27
ATT02	Teacher – Biology teacher in a secondary school, Vienna	F	24
ATT03	Teacher – Maths teacher in a secondary school, Vienna	F	23
ATT04	Teacher – Maths teacher in secondary school, Krems	F	24
ATS02	Supervisor – HoD of ATT03 and ATT04	M	46
ATT02	Teacher – Biology teacher in a secondary school, Vienna	F	25
ATT03	Teacher – Maths teacher in a secondary school, Vienna	F	26
ATT04	Teacher – Maths teacher in secondary school, Krems	F	27
ATS02	Supervisor – HoD of ATT03 and ATT04	M	47

*Table 4-3: Data collection summary in the Austrian case study*

#### 4.4 Comparison of three case studies

The contexts of each case study can be considered similar. France, Switzerland and Austria share long and extensive experience of recognising and valorising prior learning, together with informal and formal learning on a lifelong learning basis. In France, skill recognition is supported by VAE, in Switzerland by associations such as ARRA, and the Vocation and Professional Education and Training Act, adopted in 2012; Klampfer (2012) identifies similar activities in Austria in the 1990s. All paper-based and subsequently digital portfolio initiatives in the three countries started at around the same time, the 1990s.

Their organisation of teacher training is also comparable in terms of the standard skills trainee teachers must acquire before service. An in-depth study and comparison of the three teacher training syllabuses, and an overview of the competences required to teach professionally in France, Austria, and Switzerland shows a high level of similarity (see Appendices 14-16).

In all three settings, ePortfolio is embedded in the curriculum and imposed, although the way trainee teachers' ePortfolios are assessed varies: as a final assessment at the end of the training in Austria; as one activity in one course in Switzerland; and through formative assessment in France.

In terms of the differences between the three settings, when teachers start their teaching professional career, Swiss teachers have few opportunities for career development, whilst France offers several ways to progress in the educational sector, something which is also true in Austria. Moreover, in France and in Austria, a clear incentive at State level exists to promote ePortfolio for career development (e.g., *Badgeons la Normandie*<sup>14</sup>, Lorfolio in France and the initiative of BMUKK in Austria). In Switzerland, however, ePortfolios are still poorly integrated in teachers' further professional training.

Finally, looking at the socio-demographic variables, it appears that the age group for each group of participants is similar in each case study: in the French setting, teachers are all women, whilst in the Swiss case study they are men and in the Austrian case study, the two genders are balanced.

Table 4-4 shows the distribution of access given through the different case studies and roles, regarding the number total of participants.

<b>Participants</b>	Access to ePortfolio artefacts			
	<i>Austria</i>	<i>France</i>	<i>Switzerland</i>	<b>Total</b>
<i>Teacher</i>	2 / 5	2 / 3	3 / 5	<b>7 / 13</b>
<i>Educator</i>	2 / 5	0 / 2	0 / 2	<b>2 / 9</b>
<i>Supervisor</i>	0 / 1	0 / 1	0 / 2	<b>0 / 4</b>
<b>Total</b>	<b>4 / 11</b>	<b>2 / 6</b>	<b>3 / 9</b>	<b>9 / 26</b>

*Table 4-4: Access to participants' ePortfolio artefacts in each case study*

<sup>14</sup> <http://www.badgeonslanormandie.fr>

Out of the thirteen teachers interviewed, seven provided access to evidence of ePortfolio practice, as did two out of the nine educators, but none of the four supervisors. The study of the artefacts was linked to what participants said during their interview. The artefacts provided were:

- digital documents stored in the cloud – (DropBox, Google Drive), encompassing lesson plans, personal reflections on lessons or professional activities;
- paper documents – lesson plans with personal notes, further training notes and personal reflection;
- access to their personal social media pages, namely LinkedIn, Facebook or Google+ account (access codes were not given to me, but participants let me browse their account while being at the controls of their own computer in my presence).

All digital and scanned copies of the paper-based documents were imported into Atlas.ti for coding and analysis. In the next chapter, I will discuss some main findings before answering each of my research questions.

In the next chapter I will present my main findings and then use my model of Acceptance of Transferring ePortfolio Practice (ATePP) to analyse and discuss the data. I will discuss recommendations on ePortfolio practice in Chapter 6.

## Chapter Five

### Discussion of findings

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In this chapter I will present my findings, first summarising them as key points, and then discussing in more detail how they answer the research questions I established in Chapter 2. As I described in Chapter 3, I have used the ATePP model, based on CHAT and TAM, to guide my analysis and the discussion of my findings. In ATePP, my interpretation of CHAT puts the focus on three elements that influence all the others (see Figure 3-10), and during my data analysis, I considered each of them in turn. My model is an adaptation of Engeström's triangle which divides it into three further sub-systems, in alignment with my RQs: 'subject-tool-object'; 'object-community-division of labour', and 'community-rules-object'. I start this chapter by briefly presenting my main findings, before discussing the results for each of my individual RQs in more detail.

#### 5.1 Main findings

My key findings can be summarised as follows:

1. there is evidence of taught ePortfolio practice during teachers' initial training, encompassing all the constructors by which we define it (collecting artefacts of learning or skill development; organising and reflecting on them as proof of attainment; sharing/communication of the portfolio with other stakeholders).
2. there is no evidence - either in teachers' testimony or the artefacts they shared - of transferral of ePortfolio as a product from their training to the workplace, although there is some evidence of transfer of ePortfolio practice
3. teachers perceive ePortfolio practice in the workplace as useful/very useful under certain conditions, but in each case study they claim that these conditions are not fulfilled.
4. educators have no expectation that teachers will continue with ePortfolio practice after graduation.
5. supervisors have no expectation that teachers will continue and develop ePortfolio practice during their service. Moreover, three supervisors out of four did not know what an ePortfolio was, and were consequently unable to define it.

6. teachers' behavioural intentions of developing ePortfolio practice during teacher training are conditioned both by the perceived usefulness of the method and the perceived ease of use of the tools the institution imposes; whereas in the workplace, teachers' transfer of ePortfolio practice is only conditioned by the perceived usefulness of an ePortfolio for their professional development.
7. out of the different practices from which ePortfolio practice is composed, teachers put 'Reflective practice' first (90%), 'Recording of professional achievements' second (63%), and 'Collaborating' third (20%).
8. there is no evidence that participants' gender, age group, or geographical origin are variables that influence the results of the data analysis.

## 5.2 Transfer of ePortfolio practices

Here, I will discuss the findings that relate to RQ-1: What ePortfolio practices are transferred from teacher training into the workplace?

This question involves looking at the larger of the two main triangles in the ATePP model, where the subjects are teachers at their workplace, all of whom had a previous experience of developing ePortfolio practice during their teacher training. Analysis of the data was conducted principally using the first sub-system formed by the triad 'subject-tool-object' and secondly with elements of the two other triads ('object-community-division of labour' and 'rules-community-subject') to determine whether teachers considered their *former* ePortfolio practices as among the 'tools' that made up their current ePortfolio practice (if they had one). I also sought to excavate from data the different levels of activity described by Leont'ev and Hall (1987) (see Figure 3-4) which might show how participants were defining the 'motives' for developing ePortfolio practice, the 'goals' to which they were directed, and the 'conditions' under which they carried out the 'operations' and 'actions' through which they could attain these goals.

In the following two sections, I will outline and develop my findings from this analysis, which enabled me to establish prior development of ePortfolio practices during teacher training, and to identify whether they were transferred to the workplace, and if so, which ones.

### *5.2.1 Proof of pre-existing ePortfolio practice*

To consider whether transfer of ePortfolio practice from teachers' training to their workplace had occurred, it was first necessary to ascertain whether this practice existed and had been developed during their training, prior to their beginning their careers. Proof of such practice's existence could be obtained by interviewing both teachers and their educators about ePortfolio practice during teacher training (considering ePortfolio practice as a process) and by accessing ePortfolios they created during their training (considering it as a product). It would also involve two connected assumptions:

1. that the interviews with teachers and educators demonstrate the intention to develop ePortfolio practice that led to the production of the ePortfolios;
2. that accessing and analysing the ePortfolios demonstrate that these intentions were realised, and led to the ePortfolios' production.

The main difficulty in examining the ePortfolios teachers produced when they were trainees is that most of them no longer have access to the ePortfolio management system they had to use during their training – either because their access has been revoked or because they did not keep anything from their training period when they began their professional careers. Nevertheless, it is still possible to conclude that ePortfolio practice was developed during training in each of the three case studies, because:

1. the presentation of ePortfolios was a compulsory element of training, leading to pass/fail;
2. institutional guidelines defining what made such ePortfolios successful emphasised that ePortfolio practices must be exhaustively demonstrated;
3. three out of the thirteen practising teachers interviewed were able to present in whole or in part the ePortfolios they had created during their training – evidence that such ePortfolios existed prior to their shift into the workplace;
4. educators were able to present ePortfolios and evidence of ePortfolio practice from various past and present trainee teachers which were coherent with those I observed in point 3;
5. teachers' stories about the development of their ePortfolio practice were similar and coherent with the artefacts.



Consequently, there is no reason to doubt that ePortfolio practice was developed by trainee teachers during their training: in terms of Engeström's triangle, an 'object' (ePortfolio practice) clearly existed that could be transferred from the training place to the workplace. The next step is to explore whether the transfer occurred and if so, what exactly was transferred.

### *5.2.2 Proof of transfer of some practices*

In this research, none of the teachers continued using the ePortfolio management system they used during teacher training. Technically, in the French and Austrian case studies, where Mahara was the tool used, it would have been possible for teachers to export their ePortfolios and all their content in an ePortfolio standard file format (Leap2a) and then import the data, partially or totally, into another compatible platform. However, when it came to this topic, educators seemed unaware that such export/import was possible. For instance, one said:

I did not know that such a feature existed [in Mahara].(FRE01)

Another commented:

[...] while they could save their work in an export file I do not know where they could import [their ePortfolios] after having left us. (ATE05)

Educators lacked technical knowledge about what the different ePortfolio platforms in use offer in terms of transferability (export-import) of trainees' data: furthermore, they were unaware of external and alternative solutions for hosting teachers' ePortfolios after they had left the institution.

Moreover, none of the institutions focussed on in this research offered teachers access to their ePortfolio after leaving, in order to continue with their ePortfolio practice. The reasons for this are unclear but interviewees claimed a range of causes, including:

- a lack of funding for offering such a service,
- a lack of institutional rules and regulations on how to deal with external participants on the ePortfolio platform,
- a lack of clear information about how to deal with data privacy in relation to data from individuals no longer members of the institution.

The comments cited often do not reflect specific facts, procedures or decisions, but are based on the interviewees' beliefs or perceptions. For example, two Austrian educators observed:

[...] I remember it took time for our managers to finally decide to give us the material and the people to offer our students an ePortfolio platform, although we already have a long history with paper-based portfolio [...] so I guess that it would be unlikely to find the money and take the responsibility to host data for all the teachers that left us at the end of their training as well [...] (ATE01)

[...] I do not think that our university will agree to let people place information on our platform without control and we do not have time to implement such control, so I think it would be a risk my university would not accept [...] It also has a cost, I presume, and as I am not sure whether our project itself is secure in the short term, I do not see how we could afford a service in the long term for teachers outside our institution. (ATE03)

According to Thibodaux et al. (2017), the loss of access to the proprietary ePortfolio management system is fundamental in stopping students transferring ePortfolio practice, and this is certainly confirmed by some of the comments from my interviewees. One teacher from the French case study, one from the Swiss, and two from the Austrian reported that they would have been interested in continuing to develop their former ePortfolios or at least in maintaining access to them for future reference. But even if teachers could keep working on their former ePortfolios or export and import their data into another external system, this does not mean that all or any of them would necessarily do so. I have identified four main reasons for this from what teachers reported:

1. making the ePortfolio was mandatory in order to pass the module for which it was required;
2. teachers had few or no incentives from their educators to consider their ePortfolios as important work they should continue after completion of the modules in which the ePortfolios were used;
3. teachers did not decide to use ePortfolios to demonstrate learning in other modules than those where they were mandatory;
4. ePortfolios were designed to fulfil training requirements which appeared far removed from the reality of a teacher's working life, and their content was consequently considered outdated, given that the teachers had finished their training.

The majority of teachers believed there would be no reason to access their former ePortfolios or to reuse the data for building a new ePortfolio after they finished their teacher training. These observations reinforce the point I made in Section 1.5 about the static and ephemeral nature of ePortfolio when looked at as a product. Previous published literature focussing on the product face of ePortfolios may conclude that although it seems that students stop using ePortfolios, they still continue to have/use ePortfolio practice/s. This is the case, for example, in Sandler (2010) where continuity of use is monitored quantitatively by comparing students' ePortfolios from year one with those from year two, but where all the qualitative variables (e.g., ePortfolio practice) are not considered. On the other hand, this finding contradicts the idea that ePortfolios create value and persistence which can be used in other contexts, as Garrett and al. (2009), for instance, claim.

The results of my research suggest that a central factor in preventing ePortfolios as a product from being transferred is that trainee teachers consider them as a vehicle for fulfilling a goal: when this goal is achieved, the teachers withdraw their interest in them and abandon them.

Given my supposition (Figure 1.1) that ePortfolio practice as process – Bartlett and Sherry (2006)'s second face – would be something that persisted, where the product does not, the second part of my interviews with teachers focussed on determining what the nature of transferred ePortfolio practice was.

The data analysis shows that some ePortfolio practices such as 'collecting evidence of learning', 'reflection on professional practice', still exist at the workplace, but others, such as 'collaboration' and 'sharing', or 'planning' have totally disappeared. Overall, interviewees appeared to hold very similar ideas about collaboration, believing that teaching is what one participant called a 'solitary job' where there are few deliberately organised or structured moments for sharing thoughts and ideas about pedagogical topics. On collaboration and sharing, one French teacher observed:

The only occasions when we collaborate are when we talk about the course content for the forthcoming term, so twice a year - the rest of the time we discuss formally or informally about students' behaviours, administrative measures, etc., but not pedagogy (...) or sometimes (...) maybe. (FRT02)

The same feeling is shared by a Swiss teacher in his third year of teaching:

(...) I do not share my own experience with peers (...) when I started teaching here I had to make my own experience and nobody told me how to do it (...) if we need advice we ask the head of our

department (...) what I do in my classroom is something between me and my students, the same for my colleagues (...) I guess. (CHT01)

If participants report a lack of collaboration and sharing at the workplace, it explains why they have stopped the related ePortfolio practices. But the analysis of teachers' testimonies also shows a different reason that may have prevented their transfer. As trainees, teachers reported a lack of collaboration in the construction of their former ePortfolios. In the French case study teachers noted that

we were encouraged to work with peers but I personally never had the time or the need to do so and I believe it was also the case for all the others [the teacher's peers] because we never discussed or asked each other about what we were doing with our ePortfolio. (FRT01)

In the Swiss case study, collaboration and sharing were part of the assessment. Trainees had to share each page of their ePortfolios with at least two of their peers and also make two comments on pages produced by others:

It was about three marks out of the total, so without making a comment on two others' pages or not receiving and responding to peers' comments the [ePortfolio] page was not accepted (...) we were doing it, quickly, with the minimum of requested elements in our comment but nothing great, just what was necessary. (CHT05)

When it comes to the remaining ePortfolio practices transferred from teacher training to the workplace, teachers place 'reflective professional practice' first and 'collecting evidence of learning' second; six teachers consider the former as the most essential 'thing' they have learnt during their entire teacher training. Nevertheless, it was impossible to find concrete evidence for the transfer of such ePortfolio practices because none of the interviewed teachers stored their reflections on an electronic support such as a blog, a forum, an electronic journal or a ePortfolio tool. Nor did they report that they were storing artefacts of their learning in an electronic storage place such as DropBox, GoogleDrive or their own computer. One teacher from the Austrian case study had a notebook where they wrote elaborate accounts of their experience of teaching and took notes during or after staff meetings and further professional training sessions. A second teacher from the same case study who claimed not to have transferred ePortfolio practice at the time of the interview presented evidence of the opposite: a section of their GoogleDrive account was organised to record artefacts from various lessons they had given, accompanied by notes in a Microsoft Word document. The notes were reflections on professional practice and comments on the saved artefacts, most of which were annotated lesson plans and teaching material used for the lessons.

I found this particularly interesting because during my search for participants in my research, most refusals came from teachers who claimed they had nothing to say about current ePortfolio practice because they did not maintain their ePortfolios. It means that the survival of ePortfolio practice may be more extensive than suggested simply by looking at the evidence of teachers who state that they continue it. Nevertheless, the timestamp on the document in this participant's GoogleDrive shows that this practice took place during the first year of their career before stopping suddenly, a cessation the teacher explained through lack of time and loss of interest in doing such work simply for themselves.

Engagement with the ePortfolio system as a product did not always indicate a process of ePortfolio practice. A third teacher from the Austrian case study recalled that as a trainee teacher, they played a lot with the ePortfolio system:

I was spending a few hours adding images and making my pages nice, but for my own sake, because I wanted to see what we could do with Mahara. (ATE02)

However

(...) regarding the reflective position on my learning I used [Microsoft] Word and then uploaded the docs in a folder. I was never really asked or pushed to do it another way. (ATE02)

This participant never linked the content on their Mahara pages and their reflection in the Word documents, and believed that because of this, they never saw the positive impact an ePortfolio could have on their performance or personal achievements. After the interview this teacher presented evidence of continuing with a reflective approach at the workplace, recording ideas, annotating lesson plans, and recording impressions they had during their teaching and storing these artefacts in their DropBox account without really making tangible links between the different elements they were storing.

In the Swiss case study, teachers claimed to have conducted reflective professional practice "in my head" as one participant put it, or by jotting down some notes on the sheet of paper that served as lesson planning:

Before my computer lessons, I quickly prepare the plan of what I will do with the students and then after the lesson, I write down what went well and what did not. (CHT02)

But when I questioned this participant about how he retrieved the information months or years later, he confessed that he hardly read previous lesson plans or does not know where he stores them:

the essential thing is that I have thought about what was good and what was not and I know I will remember. (CHT02)

Similar testimony can also be found among the participants in the French case study.

More than 70% (11 out of 13) teachers claimed that the ePortfolio experience was useful (somewhat useful [2], useful [5], very useful [4]) because it forced them to reflect on themselves and on their learning journey, but also that they are still under the positive influence of the ePortfolio practice they built during their teacher training. Almost half of them (5) believe they still have some ePortfolio practices, even without engaging with electronic resources to record their thoughts or present evidences of further learning and professional experiences.

My analysis shows that teachers are able to articulate a discourse about their current ePortfolio practices, which demonstrates continuities with what they learned during their training. In terms of the ATePP model, this indicates that the elements constituting the ‘object’ (development of ePortfolio practice) in the smaller of the two triangles have been integrated into the ‘tool’ element of the larger triangle. There is evidence that teachers as the ‘subject’ have engaged with the sub-system represented by the triad ‘subject-tools-object’ and that the ‘outcome’ of the smaller activity system (transfer of ePortfolio practices) has been attained. The analysis of the interviews and the documents also showed that teachers did not share one common ‘motive’ for developing ePortfolio practice during their teacher training and moreover that the notion of transferring ePortfolio practices to the workplace was not present in any of the stakeholders’ explanations of their ‘motive’.

Analysing my data through the lens of CHAT also establishes the significance of the ‘rules’ element in this activity system. The evidence suggests that in each of the three case studies, no rules existed that fostered the transfer of ePortfolio practice to the workplace, neither formal rules (e.g. guidelines, coursework, evaluation grids, etc.) nor informal rules (e.g. teachers’ and educators’ beliefs about the possible ways of transferring ePortfolio practice). In spite of this, transfer of some practices nevertheless took place, although the ePortfolio itself, as a product, was not transferred. In this activity system, the ‘rules’ are aligned to the ‘motives’ and the ‘goals’ – to develop ePortfolio practice in order to assess the trainee teachers’ learning journey. Therefore, when trainee teachers leave the institution after graduation, the aim of developing ePortfolio practice (‘object’) has been fulfilled and it can be abandoned. This is coherent with Engeström (1987)’s claims that an activity system disappears when its goal is attained.

Moreover, teachers consistently observed a lack of collaboration in their ePortfolio practice, both as professionals and as trainees. As I explained in Chapter 1, collaboration is one of the main features of ePortfolio practice, and is something that teachers were encouraged to develop during their training; but because it formed part of the ‘rules’ imposed by the ‘community’ (as a way of meeting assessment goals; as a resource or ‘tool’ to develop their ePortfolio practice), it did not become reified or internalised as part of their own ePortfolio practice, something which contributed to their loss of interest in the latter. My analysis suggests that teachers considered ePortfolio practice only in terms of the first, purely functional, sub-system (‘subject-tools-object’), rather than in terms of the wider cultural-historical context represented by the other triads.

In the next section I will look at the two sub RQs about teachers’ perceived ease of use and perceived usefulness of ePortfolio practice.

### *5.2.3 About the nature of teachers’ perceived ease of use and perceived usefulness of ePortfolios*

The reification – individualisation – of external variables into internal variables conditions teachers’ personal behavioural intentions (BI) about transferring ePortfolio practice from teacher training and maintaining it at the workplace. In the ATePP model, where the two Engeström triangles focus on the external variables explaining teachers’ decisions around transferring ePortfolio practice to the workplace, the analysis of the internal variables (PEOU and PU) employs another framework: TAM, for the reasons outlined in Section 3.2.2. As explained in Chapter 3, my data set is too small to run a statistical analytical research with TAM. Therefore, I base my research on the assumption that the results of previous TAM quantitative studies on ePortfolios are valid for and applicable to my research. This is further discussed in section 5.5.

The results of the majority of the studies which took TAM as their methodological framework show that personal behavioural intentions of using a technology or engaging with an activity are driven by the user’s attitude (AU). The latter is the result of two forces: the perceived usefulness (PU) of the technology/activity and the perceived ease of use (PEU) of the technology/tools that mediate the activity. According to previous TAM studies about students’ engagement in developing ePortfolio practice, these two forces are not equal, with a prevalence of PU over PEU (see e.g., Blom and Hitchcock (2017), Cheng et al. (2015), or Schlag and Imhof (2017) on trainee teachers’ anxieties about using computers).

In order to compare these quantitative conclusions with a qualitative analysis, I left space, in my semi-structured interviews, for collecting information about teachers' perceptions on the building of their ePortfolio practice. I also asked them to reflect on the reasons behind their personal behaviour in terms of whether or not to transfer their ePortfolio practice to the workplace, opening a dialogue to enable them to explore the nature of their decisions. Through my analysis of the data thus provided, I observed that teachers were more concerned by how to make sense of the reasons which led to them being asked to develop ePortfolio practice (usefulness) than by the ease of use of the technology that underpins the building of ePortfolio as a product, a conclusion which is in line with those of the quantitative studies.

In terms of perceived usefulness, teachers' uncertainty about the rationale for continuing their ePortfolio practice beyond their training is understandable, given that my data suggests that neither educators nor supervisors pushed teachers to continue and develop their ePortfolio practice, or deliberately created or offered a space where this could be maintained. Educators viewed ePortfolio practice as strategic, and useful for developing and assessing skills during training: consequently, it is unsurprising that teachers report having little idea that they could be useful after training and in the workplace: their training did not contribute to their forming an idea of usefulness that survived their transition from education to professional life. Moreover, their training in ePortfolio practice had been focussed more on developing skills in using the ePortfolio management system rather than supporting them in developing and understanding ePortfolio practices, leading to a perception that conceptualised ePortfolios more as products than as process. Ultimately, the teachers' reification of all these external elements were definitely not enough for them to claim they had an understanding of what ePortfolio practice is useful for beyond enabling them to successfully complete a training module.

Furthermore, in none of the three case studies was ePortfolio practice sought by supervisors or required in the workplace: this also contributes to teachers' representation of ePortfolio's lack of usefulness. When asked in which conditions they would consider redeveloping their ePortfolio practice, the majority concluded that it makes no sense for them to do so, as writing reflections on their learning and professional experience is pointless if there is no one to read them and comment on them. This perception suggests that they have absorbed the idea that the point of such reflection is to share it, but that they see sharing as very goal-oriented/goal-driven, rather than a worthwhile and valid activity for its own sake (Bolton, 2010). They also claim that they would need resources – a category which for them includes time as well as specific tools - offered by their former education institution, by their workplace



or by the state. This claim is interesting because when teachers were asked about the loss of their access to ePortfolio tools, they reported that this was not a decisive element in continuing or ceasing ePortfolio practice – yet it seems to be an important point for them in terms of restarting or re-establishing ePortfolio practice.

In TAM, ‘ease of use’ is generally focussed on the tool. In the context of ePortfolio practice, however, ease of use is not only linked to the tool but also to fully understanding the complexity behind the development of ePortfolio practice: it is not simply a case of mastering a product, but embracing a process and a set of practices – learning how to use the tool, but also learning what to do with it. In relation to this, teachers claim that neither are easy: ePortfolio software is complicated to use and the different elements that form ePortfolio practice are complex to apprehend. However, teachers considered that difficulties in use were not insurmountable if the process itself made sense. If they understood the value of the process, they felt they could overcome the difficulties of creating the product. Moreover, they believed this is something that would be easier in the workplace, where they would be more in charge of choosing the right software or tool through negotiation with decision makers, whereas during training, the tool was imposed by the educational institution.

To conclude, a qualitative analysis of my data indicates that teachers’ perceptions show perceived usefulness predominating over ease of use in terms of influencing or determining their behaviour.

#### *5.2.4 Conclusions about the transfer of ePortfolio practice*

In Section 5.2, I have discussed my findings regarding my first RQ. The ATePP model based on CHAT and TAM guided my analysis of which ePortfolio practices were transferred from teacher training to the workplace in each of my three settings. The division of Engeström’s triangle into three different triads or sub-systems, was useful as a framework for identifying motives for transferral. The results show teachers claim that for them, like the act of teaching, building and maintaining ePortfolio practice is a ‘solitary journey’. This corresponds to the first triad formed by ‘subject-tool-object’. However, teachers’ discourse reveals the absence of the two other sub-systems through their perceptions of lack of ‘rules’, clear ‘division of labour’ and ‘collaboration’.

In term of collaboration, analysing the data within a CHAT perspective reveals a tension between the ‘rules’ and the ‘object’ in the three case studies. Rules exist but are not aligned to

the development of collaboration which I consider, as explained in Chapter 1, a key element in building ePortfolio practice. While it could also indicate a lack of reification of the rules by teachers, who could reinterpret and internalise them to foster the development of their ePortfolio practice, the data I collected in relation to 'rules' clearly shows that the ePortfolio dimension is missing when 'rules' concern collaboration. This reinforces my previous finding that there was no negotiation of meaning which could build a common 'motive' and common 'goals' in the development of ePortfolio practice.

My observation that teachers have not transferred their ePortfolios as a product from teacher training to the workplace confirms the idea (Supposition B) I put forward in my ePortfolio model in Chapter 1, where I consider that 'ePortfolios as a product' are finite in use, because the product is made to fulfil a goal and may cease to exist when the goal is reached. The fact that most of the teachers:

- no longer have access to the tool where they developed their former ePortfolios and have stored their data;
- were not aware that export features exist with which they would have been in the position to transfer their data to another external ePortfolio service;

are not, however, among those reported by teachers themselves as essential in the decision to abandon their former ePortfolios. Teachers consider that the latter were designed to demonstrate learning objectives in relation with their teacher training and do not see how they could have helped them during their professional career. None of the teachers used their ePortfolios to apply for a job or prepare for a job interview. They claim that their educators never suggested the ePortfolios could be an asset for job hunting or a useful tool throughout their professional career, nor were ePortfolios requested by potential employers/supervisors. The position of educators and supervisors will be developed in the next section (5.4) as an answer to my second research question.

The analysis of teachers' data shows that participants claim they have transferred some ePortfolio practice they have developed during their teacher training. But there is little concrete evidence to support this:

- there is no trace of surviving ePortfolio practices based on sharing and collaboration;

- the reflective practice is often imaginary or recorded on paper in a notebook; rarely are digital tools used that would form the start of an ePortfolio system (e.g., a blog, an electronic personal journal, a forum);
- the collection of evidence for further professional training and professional experience is made of papers or short notes taken put into folders.

Most of the teachers interviewed are not users of digital storage places on their own computer or on the web, with the exception of the Austrian case study where 2 out of 4 teachers show evidence of transferred ePortfolio practice. It is possible that this reflects the increased availability of mobile technology, and that the greatest confidence it instils in users is changing how and where individuals take and store notes, along with the nature of the notes themselves as Bax (2003) suggests through his principle of ‘normalisation’. For Bax (2011), normalisation is inevitable, occurs with every technology, and follows the same progression, therefore the relative youthfulness of ePortfolio practice in teacher education can explain, at least in part, a certain lack of transfer of core ePortfolio practice (e.g., gathering information, reflection).

The reasons for such a change between the construction of an ePortfolio practice during teacher training, which teachers claim was useful, and the ePortfolio practices that are effectively transferred to the workplace, seems to be more complex than participants described it during their interviews. I will use the holistic approach of the ATePP model (defined in Chapter 3) to offer an explanation for this in Section 5.5.

### 5.3 Other stakeholders’ perceptions of teachers’ ePortfolio practice

In this section, I will present findings in relation to RQ-2: What are ePortfolio stakeholders’ perceptions of teachers’ ePortfolio practice? In this section, the perspective given by a CHAT approach helps me to establish the new external variables that may impact upon teachers’ decision to transfer their ePortfolio practices and then maintain and develop them at the workplace. To answer RQ-2, the focus is put on the two-subsystems formed on the one hand by ‘rules-community-subject’ and, on the other hand, by ‘community-division of labour-object’. In the ATePP model, the study of educators’ perceptions is represented by the small Engeström triangle on the left of the diagram, while the larger triangle on the right focusses on the supervisor’s perceptions.

Although teachers form the main group of participants in this research, focussing only on the ePortfolios’ owners is, as Singh and Ritzhaupt (2006) suggest, not enough to understand

how ePortfolio practices are built and how and why decisions about their transfer from teacher training to the workplace are taken. Moreover, my data analysis model – ATePP – draws upon Engeström’s triangle which identifies three elements that influence all the others (subject, object and community). In my study, teachers are the subject, ePortfolio practices are the object, and educators/supervisors are members of the community: educators in the ‘community’ from the triangle where teachers take the role of trainees, and supervisors in the ‘community’ from the triangle where teachers take the role of professionals/in-service teachers (see Figure 3-5). Presenting the position of members of the ‘community’ must clearly be considered important. Moreover, based on my personal experience as a teacher, I would observe that educators may influence the person they teach in their decisions and their willingness to adopt behaviour and engage with activities – the transfer of ePortfolio practice included. In the next two subsections I will present my analysis of educators’ and supervisors’ perceptions of ePortfolio, and their expectations that teachers will transfer their ePortfolio practice to their workplace.

### *5.3.1 During teacher training – the educators’ perspective*

In the three case studies, the initiative for embedding ePortfolio practice in the curriculum of teacher training courses came from educators and was supported, to some extent, by their institution’s management. In the French case study, the ePortfolio was introduced very late in the curriculum of trainee teachers:

(...) it is true that our module is arriving at the end of [teachers’] training and other colleagues within the other modules wanted to see first what we can do with ePortfolio before maybe also using them in their own modules. (FRE02)

ePortfolio was a new area for the French educators and although they had not made any ePortfolios themselves, they acquired knowledge by reading about experiences documented in articles or ePortfolio conference proceedings. The ePortfolios they asked trainee teachers to build were to inform and document competence each had to acquire during the six-month module. At the end of the module, trainees’ ePortfolios were assessed by the same educators:

the aim of the assessment was to verify that the attainment of the skills was documented and the ePortfolio contained proof [trainees] could engage with digital resources, but above all it was to let trainee teachers discover the tool. (FRE02)

Significantly, the evaluation criteria concerned were focussed on the ePortfolios as the product rather than the process: by identifying the purpose as “discover[ing] the tool”, educators were

focussing on the use of the software (Mahara) and the result (ePortfolios as a product). This was confirmed when teachers were interviewed. One said, for example:

it was to discover what we could do with the tool and how to use it for competences (...) it was limited to the course, not designed for our professional careers. (FRT01)

Moreover, it is clear that time constraints limited sharing and collaboration. One educator observed that:

ePortfolio concepts were presented to [trainees] in the middle of our module (...) then after a period of training [they] were asked to build their own (...) about four weeks before the end of the module; (FRE02)

and another commented that:

[w]e had no time during the module to look at each [trainee]'s portfolio but I was at [trainees'] disposition if they were asking for help, but [there was] really no time for feedback before the final deadline. (FRE01)

In the French case study all educators reported a high level of satisfaction with what trainee teachers provided in terms of their ePortfolios. Each was convinced that ePortfolios are useful for assessing trainee teachers' achievements but none considered that ePortfolio practice should be continued after teacher training. Consequently, none of them pushed their trainees to export or continue using their ePortfolio or ePortfolio practice in the workplace. While they knew of state sponsored ePortfolio projects – e.g., Lorfolio in this context – and were aware that the French government wished to develop ePortfolio practice for long-life learning (see Appendix 12), they did not consider that the trainees' work on their modules was worth transferring for future reference. They also felt that human resources departments, headteachers and others in charge of hiring or supervising teachers were not keen on using ePortfolios, and that this further justified the fact that they were not fostering transfer of trainee teachers' ePortfolio practice to the workplace.

In the Swiss case study, the two educators I interviewed are in charge of the module in which ePortfolio practice is a required component. These ePortfolios were created using Educenet2, a nationally supported platform for education which offers blogging, posting on forums, document storage, and chatting facilities. One of them justified the choice of Educenet2 thus:

[this] platform is the official eLearning tool the state of Vaud has decided to offer throughout the whole educational system for more than a decade now. Potentially our trainees have already used it or

will be using it when teaching in the classes of our canton during their professional teaching careers. (CHE01)

The other educator supported this claim, adding that teachers will certainly use Educanet2 later in their teaching - to provide electronic documents for their students and ask them to upload their work for assessment in a digital format.

Both Swiss educators considered collaboration and reflection on learning as paramount, which is why they decided to embed ePortfolio practice in the curriculum of their one-year module, to ensure that trainee teachers developed these skills. During the module, trainee teachers must collect information and write an essay for each of ten activities imposed by the educators (see Appendix 16 for the list of these activities). For example, each trainee must choose a web 2.0 service or a particular software and reflect on how they could use it in class with students; plan a sequence of lessons where their idea is implemented and tested; and finally reflect on the results they noticed and any adaptations of the initial idea needed. Each of these ten activities (described as '*une pièce*' [artefact] by the educators) requires comments from at least two other trainees from the same cohort and the artefact's owner must respond to their peers' comments and critiques. Moreover, as one of the educators noted:

trainees should write insightful and useful comments on others' work. This is compulsory and if I consider it is not done correctly the [artefact] is rejected and must be amended. If it is rejected again, the whole module is failed. (CHE01)

In my view, this explains the negative emotions with which some of the Swiss teachers discussed their former ePortfolio practice (referring to 'fear', 'tension', 'duty' or 'burden').

The Swiss educators described their apparatus as a tool for assessing collaboration and reflection on how technology can enhance learning and teaching. However, neither considered that trainee teachers' ePortfolio practice should or could be transferred to the workplace to continue documenting these skills during their professional careers, nor had they talked to trainee teachers about how they could develop ePortfolio practice after completing the module, or use it for other modules during their training. One educator summarised the rationale behind this position as follows:

(...) in Switzerland teachers are hired after they have been visited by a group from the school board, usually composed of the head of department, headteachers and one or two deputy heads. I never heard they were interested in looking at trainee teachers' ePortfolios; (...) and then after the contract is signed there is not much interest in what teachers think or reflect on what they do, but only regular administrative checks that further professional training is undertaken (...). (CHE02)

What this educator did not mention here but which subsequently emerged is that neither he nor his training institution communicate with supervisors, either about the fact that they develop teachers' ePortfolio skills or what kind of practice they develop on the top of the main components of teacher training. This absence of communication between the teaching institution and potential employers was also observed by Hsieh et al (2015), as noted in my literature review (Section 2.3.3).

The educators in the Austrian case study presented a different perspective to both the French and Swiss. The institution where the case study was based, like many similar institutions in Austria, has a long history of using paper-based portfolios. The Austrian educators explained that, from their point of view, portfolios serve trainee teachers by helping them document their progress, and prepare them for service, as a formal tool for assessing that all necessary teaching skills have been attained during teacher training. While it is compulsory to present the portfolio at the end of each year of the course, it neither receives a mark, nor contributes towards the final assessment. Collected data do not show clearly whether the assessment of ePortfolio practice, or the presentation of an ePortfolio as a product which must meet certain qualitative criteria to achieve a pass grade in particular modules, impacts upon the degree of trainee teachers' engagement, compared to when ePortfolio is simply one element of assessment among others. Formative assessments can be seen as a ladder: on each step, communication and informal evaluation by learners' peers and educators enrich each other, and contribute to progress enabling the learner to reach top quality (the top of the ladder). Integrating such formative assessment in how ePortfolio practices are taught could improve their perceived usefulness for trainees. Nevertheless, Austrian teachers claimed that as trainees, they were tempted to put aside what was seen as unimportant (i.e. not assessed) in favour of other activities with which they could improve their final grade, while Swiss teachers reported that they built their ePortfolio with the goal of reaching the pass mark, rather than as a means of reflecting truthfully on their experience (the goal which educators apparently seek). In conclusion, educators face a problem in terms of combining the idea of developing a truthful ePortfolio as an important end in itself with the perception that what is important is what is evaluated. In terms of Engeström's triangle, this constitutes a tension, within the training institution, and I will return to this and other tensions more generally in Section 5.4.

Most of the educators in charge of the ePortfolio project had built ePortfolios for themselves during their own training or to learn about ePortfolio practice (learning by doing):

only two of them, however, continued maintaining their ePortfolio. One explained that this is for

documenting my work as a researcher-teacher. I use Mahara to collect articles and information about my different interests in education and I also publish reflection and information about my work on my personal blog or journal in Mahara. This is my point of presence on the web, through my ePortfolio. (FRE01)

They shared a perception that, as one put it:

as an extension of the paper-based portfolio our [trainee teachers] have been making for years now, ePortfolio is an indispensable tool for developing teachers' self-critiques and letting them build their professional identity. (ATE01)

Indeed, all the educators I interviewed believed that “ePortfolio is a strategic tool” for building teachers' professional skills. As explained in Section 4.3.1, the Austrian trainee teachers moved between theory and practice throughout their teacher training; the educators considered their ePortfolio as the place where it is possible to make links between what is taught during the course and the trainee teachers' experiments in the classroom, working with real students. However, like the French and Swiss, the Austrian educators were sceptical about the usefulness of ePortfolios in terms of applying for a position within a school. While they expect former trainees will continue to maintain a reflective stance in relation to their teaching work, they do not expect them to use ePortfolio to do so.

Before presenting my findings about teachers' supervisors, I will conclude by summarising my findings about the educators in three main points:

1. Perceptions about ePortfolio practice were different in each case study. Both Swiss and Austrian educators were convinced that developing ePortfolio practice was important for teachers, enabling them to develop reflective and collaborative skills – although the Swiss were more coercive in implementing this practice. The French educators, however, approached it in a more exploratory spirit – their project was designed to allow trainee teachers to discover ePortfolio practice, as well as providing the educators themselves with a live experience of ePortfolio for their teaching module.
2. Only the Austrian educators had personal experience of building an ePortfolio. The majority of the educators I interviewed had never built a ePortfolio for themselves and had constructed their representation of ePortfolio use from their



reading of published articles and books, or from attending conferences on the subject.

3. Educators do not think that ePortfolio practice is worth transferring and maintaining at the workplace, or that it is useful for teachers, either in terms of finding employment or in terms of their work as classroom teachers.

I have also noted that, although educators do not communicate with external stakeholders about their ePortfolio projects, they nevertheless assume that supervisors – human resources departments, headteachers, heads of departments, and others in charge of hiring teachers and ensuring that teachers' standards are maintained and developed – have no need for teachers to maintain ePortfolio practice. In my next section, I will explore whether my data suggests that such assumptions about supervisors' expectations are accurate and warranted.

On the other hand, I also found that teachers say their decision to engage with and develop ePortfolio practice is not related to what educators do or show in terms of their own ePortfolio practice.

### *5.3.2 In the workplace – the supervisors' perspective*

Whereas my data for teachers and educators draws upon both interviews and artefacts, my analysis of supervisors' perceptions draws only on interviews, based on my assumption that they were unlikely to have developed ePortfolio practice. I made this assumption based on my professional experience as a consultant, which had included presenting the idea of ePortfolios to supervisors. It could have been wrong, illustrating a prejudice or bias that I brought to my research: but in the event, however, my discussions with supervisors revealed it to be correct. Nevertheless, the fact that it turned out to be an accurate assumption within this research should not be taken to imply that it would be equally accurate in other research into the topic.

At each interview I conducted with supervisors, I found it was necessary to define an ePortfolio and what constitutes ePortfolio practice. Although published literature presents evidence of interest in and knowledge of ePortfolio practice within employers in general (Fowler, 2012; Weber, 2016), it also suggests that in some contexts, supervisors are not familiar with ePortfolio (Schiele et al., 2017; Watty et al., 2016). This does not mean that ePortfolio concepts are not part of supervisors' practice when it comes to hiring teachers, and monitoring their qualifications and continued professional development. In France and Switzerland, for example, the notion of '*le bilan de compétences*' (a personal document in which teachers present

and analyse their skills) has been in use since the 1980s. Consequently, I found that changing the vocabulary I used in my interviews, so that it was more in tune with concepts familiar to the supervisors, was key to establishing relationships with them, and collecting information. For example, in the interview with ATS01, the participant avoided the term ‘ePortfolio’, calling it ‘the thing’ instead; when I started to use the same expression, they began using more developed sentences, and spoke more easily.

Supervisors’ perceptions about the maintenance of teachers’ ePortfolio practice are that this may be useful for teachers but not necessarily for themselves. The French supervisor noted that the ePortfolio

is something I presume that is personal, which is made by and for the teacher (...) this is an important element to keep for the following up of his professional and personal development (FRS01)

while in Switzerland another pointed out that accessing a teacher’s ePortfolio is not necessarily a good thing because

[it] may contain personal and private notes which are not directly related to the institution for which they work, but which describe their personal or professional objectives, which by state law I am not allowed to access. (CHS02)

It became clear that supervisors’ lack of knowledge about ePortfolio features means they are unaware that ePortfolio owners can decide what they share, with whom and for how long.

With the exception of one supervisor who had just returned from a conference on human resource management where he attended two presentations on ePortfolio, the others all claimed that they had never seen an ePortfolio in their supervisory role. In Switzerland and in Austria, some supervisors took a very strong position against ePortfolios: because, for instance, they cannot record external feedback teachers could take into account in constructing a report on their skills. A Swiss supervisor explained:

OK, but the ‘*bilan de compétences*’ also includes an external view. Someone puts it together on their own but there is also someone external, to give direction and feedback. Now, I do not know for sure, but I think that the ePortfolio is really something individual, where I put my elements, my acquisitions as time goes on, but it lacks the external perspective I need to help me progress. (CHS01)

In general supervisors do not see the point of teachers having a continual process whereby they record their achievements but they see the ‘*bilan de compétences*’ or possibly an ePortfolio

as a way of taking a snapshot that summarises teachers' professional history when their career is at a crossroads, or when they want to apply for a new position in the education system.

Most interviewed supervisors are or were also teachers (three out of four) and consider ePortfolio practices – e.g., recording reflective practice, collecting artefacts about learning and professional development – as good practice in teaching. However, their perceptions of their role as supervisors do not include taking actions to foster such practices by teachers: they believe it is up to the individual teachers to engage with them or not.

To conclude, supervisors' overall perceptions about teachers' ePortfolio practice can be summarised in two points:

1. The lack of specific knowledge about ePortfolios leads supervisors to form assumptions and prejudices about them: for instance, that individuals are unable to control access to their ePortfolios; that the material they contain is personal and access risks infringing an individual's rights to privacy; that in comparison to the tools they know and use, ePortfolios lack sharing and collaborative features.
2. Supervisors also claim that the different roles they have to play do not include supporting the development of teachers' professional identities.

Consequently, the results of my research suggest that supervisors' perceptions of teachers' ePortfolio practice lead them neither to foster them nor to discourage them.

To answer RQ-2, the ATePP model helped me to examine other stakeholders' perceptions of trainees' and teachers' ePortfolio practice. These stakeholders are members of the 'community' element in the CHAT system. Analysis in this part of the study entailed looking at the two-subsystems formed on the one hand by 'rules-community-subject' and, on the other hand, by 'community-division of labour-object', both having the 'community' as a common element. Figure 3-10 shows the relationship that exists between the 'community' and the 'tool'. In the three case studies and during teacher training, the tools to develop the ePortfolio practice ('object') were imposed on the 'subject' by educators or by the institution. While in the French case study it is not clear how the 'tool' was chosen by the 'community' and how these two elements may influence each other, the Swiss and Austrian educators outlined a rationale to support their choice and were also able to analyse the impact of their decision. Therefore, there is strong evidence of the development of formal 'rules' in the two latter case studies whereas in the French case study, 'rules' were more informal with no clear 'goals' and objectives about

the development of trainee teachers' ePortfolio practice – it was, as they describe it, “an experiment to discover how ePortfolios work” (FRE02). The analysis of data with CHAT reveals the presence of a clear and formal ‘division of labour’ when clear and formal ‘rules’ exist, as in the Swiss and Austrian case studies, whereas in the French case study, the notion of ‘division of labour’ is weak. Nevertheless, in all three case studies, the ‘subject’s perception of the ‘division of labour’ creates a tension within these two elements. In the case studies where ‘rules’ and ‘division of labour’ are formal and clear, there is evidence that the cultural and historical background – the institutional and wider social context – has shaped these two elements and created a strong base to the activity system.

However, as I have already commented in relation to RQ-1 about teacher’s perceptions, while the ‘motives’ that, for the educators, generate the activity do not encompass the idea of transferring the ePortfolio practice (as a product) to the workplace, some members of the ‘community’ claim that individual practices – such as the reflective writing and collaboration – may be worth transferring as the ‘outcome’ of the activity system.

At the workplace, there is a clear tension between the ‘tools’ and the ‘community’ in which supervisors present a lack of knowledge about the ‘subject’s previous ePortfolio practice and about the concept of the latter in general. This makes it difficult to find data about the ‘rules’ and ‘division of labour’ elements regarding the maintenance and development of ePortfolio practice at the workplace. Although ‘rules’ and ‘division of labour’ exist and govern teachers’ professional activities they are not aligned with the ‘object’ – maintaining and developing teachers’ ePortfolio practice – or do not consider it. Furthermore, this ultimately creates a tension between the ‘subject’ and the ‘object’ (why continue to develop ePortfolio practice?); this tension, however, is not reported by the ‘subject’ as a ‘motive’ for stopping or continuing with the development of their ePortfolio practice.

In the next section, I will present and develop findings about the external factors that may influence teachers’ decisions to transfer their former ePortfolio practice or not.

## **5.4 Factors that influence the transfer of ePortfolio practice**

This section addresses the final research question, RQ-3: “What external factors influence the transfer of ePortfolio practice?”, considering the reasons why ePortfolio practice is transferred or not and also how teachers’ training and professional environment influence this transfer (RQ-3.1 and RQ-3.2).

My model (ATePP) seeks to explain the reasons behind whether ePortfolio practice is transferred, focussing both on global external reasons while also considering how the reification (internalisation) of these impacts on individuals' behaviour. It helps reveal the tensions (Karanasio et al., 2017; Murphy and Rodriguez-Manzanares, 2008) within each case study in order to identify and categorise elements that foster or prevent the transfer of ePortfolio practice, and thus explore how they may be addressed. Excavating this information from the data gives stakeholders an opportunity to acknowledge and use these tensions, in what Engeström describes as an 'expansive' process of learning, to improve the outcome of the system: tensions in a system can either be a rupture or an engine for change, depending on "whether or not they are acknowledged and resolved" (Nelson, 2002, p. 34).

The tensions I found through my data analysis fall into three different groups: relationships; technical; and organisational. Each group involves specific stakeholders as presented in Table 5-1, and there is some overlap between the categories. My observations about these groups are outlined in the next three subsections and a more detailed consideration of my findings overall will be developed in Chapter 6.

#### *5.4.1 The 'relationship' group of tensions*

This group identifies tensions that emerge around sharing (for instance, informative and supportive peer comments on ePortfolios) and collaboration (for instance, in the production of an ePortfolio) among trainee teachers, but also between teachers and educators, and educators and supervisors (for instance, sharing what takes place during teacher training). For Engeström et al. (1999) the 'subject' in CHAT is an individual or a group of individuals extracted from the 'community' on which we put the research focus. Therefore the 'relationship' group of tensions is framed by looking primarily at the sub-system in ATePP formed by the triad 'object-community-division of labour' where teachers as the 'subject' are studied through their roles within the community.

In the Austrian and French case studies, both teachers and educators agreed their project lacks any relationship between different stakeholders through collaboration and sharing. When sharing and negotiation of knowledge happened, it was among peers at the same level of development and rarely with those who were more able. By its nature, an ePortfolio is a very personal object and while the owner has complete control over sharing the content or not, teachers reported that they were sometimes embarrassed to share their work in progress with people outside the group of educators. Some expressed a lack of confidence in building their

ePortfolios, others did not want to show their work to members of their cohort because of historical problems in their personal relationships with them. In the Swiss case study, collaboration was imposed through the compulsory requirement for trainee teachers to engage with others' ePortfolios and to allow comments on their own. When teachers recalled having to read and place comments on others' ePortfolios, they used negative terms (such as “we were doing his thing because we had to<sup>15</sup>”), appearing sarcastic or uncomfortable.

Groups of tensions	Description of possible tensions	Stakeholders concerned
Relationship	<ul style="list-style-type: none"> <li>• The role played by each stakeholder is not clear</li> <li>• Some stakeholders play different roles with contradictory aims (e.g. facilitate and assess)</li> </ul>	<ul style="list-style-type: none"> <li>• Teachers</li> <li>• Educators</li> <li>• Supervisors</li> </ul>
Technical	<ul style="list-style-type: none"> <li>• The choice of tool is not adequate for teachers' needs or specified rules</li> <li>• Difficulties in accessing tools</li> <li>• Confusion where different versions of the tool are present simultaneously</li> </ul>	<ul style="list-style-type: none"> <li>• Staff</li> </ul>
Organisational	<ul style="list-style-type: none"> <li>• ePortfolio support material not adapted to teachers' needs</li> <li>• Regulations confusing educators and/or teachers about their role or required actions</li> <li>• Co-existing competitive activities (ePortfolio for employability and ePortfolio for assessment)</li> </ul>	<ul style="list-style-type: none"> <li>• State</li> <li>• Policy makers</li> <li>• Director of education</li> <li>• Headteacher</li> </ul>

*Table 5-1: Presentation of my three groups of tensions among the three case studies*

In the Austrian and French case studies, participants found problems with the pedagogical relationship between trainee teachers and educators, because the roles of each group were not clearly defined. In France, although trainee teachers were told to engage with ePortfolios as “a game” to build their own representation of how ePortfolios could be useful for themselves and for their future students, during the course of the module, they were suddenly informed that

<sup>15</sup> In the original French text: “on faisait son truc parcequ'il le fallait bien”.

their ePortfolio practice would be assessed. Initially, it was unclear how and by whom: ultimately, the evaluation was carried out by the educator – the same people who had been supporting them in developing their ePortfolios, a shift in role which the trainee teachers clearly found unsettling. Moreover, my examination of the evaluation criteria found that they were neither clear nor really designed to assess ePortfolio practice specifically. It appeared that educators were aware that this element of their project was not well structured as I was not allowed to see a copy of the evaluation grid.

When collaboration was required or needed, educators agreed that they had not dedicated enough resources (whether time, supervision skills or empathy) to develop and sustain such practice within themselves or their trainees. Most of the interviewed educators had only a theoretical understanding of ePortfolios and ePortfolio practice because they themselves had never engaged with such technology. While the Austrian educators reflected on this, and concluded that they would like to develop such practice, Swiss educators, on the other hand, felt they had no time left to engage with that and

it has to stay the way it is, because 90% of the time, at the end, communication about each other's [ePortfolio] exists and we can check this on the evaluation board (...) so it works. (CHE01)

My assumption had been that it was important for educators to engage with ePortfolio practice so that their trainees could follow the example of their educators, an assumption rooted in Vygotsky's 'zone of proximal learning' (Wertsch, 1985) where acquisition of knowledge occurs by students mimicking mentors' behaviour. During the interviews, however, the majority of teachers reported that they had not thought about this before. A few added that, from their point of view,

the fact that a teacher asks a student to do something need not require that the teacher has done that thing before the student (...) if it is written in the program it has to be done, period; (CHT02)

another participant joked that

I know sports teachers who cannot jump over bars but ask their students to do so. Why would it be different with ePortfolios? (CHT03)

These observations, together with teachers' indifference to the issue of whether or not their educators had built their own ePortfolios, lead me to reflect that Vygotsky's assumption does not seem to apply in this case. As a teacher practitioner, I can certainly recognise that, given the limited time educators have at their disposal, dedicating a considerable amount of it to an activity which has minimal impact on their trainees is not worthwhile.

As I have already discussed in Section 5.3.2, at the workplace, collaboration around the construction of knowledge and ePortfolio practice is not supported by supervisors.

#### 5.4.2 *The ‘technical’ group of tensions*

The tensions I group together as ‘technical’ concern the ‘tool’ and the ‘object’ elements in the Engeström triangle. In Austria and France, where the ePortfolio management system used was Mahara, trainee teachers and educators claimed features were not enabled by IT staff in charge of the platform, resulting in contradictions between what the educators asked their trainees to produce and the trainees themselves were able to do. For example, in France they were asked to provide evidence that was digitally recorded, but the machines available to them for recording produced a file format for which the Mahara plug-in was not activated; lacking the knowledge that would enable them to transform the file to a format the Mahara platform recognised, they were unable to upload their work. Such disruptions caused by tools in teachers’ work create tensions between their actual ePortfolio practice and that expected by educators mediated by published guidelines.

In the Swiss case study, evidence also showed that the chosen tools were not suitable for the purpose of building ePortfolios or developing ePortfolio practice. The institution’s decision, already noted, to use Educenet2, a set of web services supported by the state, was justified by the fact that every teacher in the state sector has free access<sup>16</sup>. However, the different features offered by Educenet2 (e.g. blogging, storing documents, chatting) must be accessed separately or individually, whereas an ePortfolio management tool allows access to all of them from the same place. Similar issues arose at the workplace in all case studies, where teachers’ lack of IT knowledge created difficulties for them in reproducing the features of the ePortfolio management system they had used during their training. Some Swiss and Austrian teachers reported that they did not know how to use different services such as DropBox or GoogleDrive (for storing artefacts, and turning them into evidence) or Wordpress or Tumblr (to reflect on their practice and build their ePortfolios using evidence, and to share material either publicly or with a selected range of people), or Evernote, which can group all these activities together in one platform. It is clear that teachers were struggling to imagine how their practice could be continued outside the training institution, and shared a need for their school or state to offer

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<sup>16</sup> Swiss State for Education (Educa, 2017) claims that Educenet2 hosts 638,000 members: 478,000 students and 153,000 teachers, but also administrations and parents: this represents 36% of all Swiss students, but almost every Swiss teacher in 2015 (Federal Statistical Office, 2017)



them a fully functional platform where they could continue their ePortfolio practice. This has an impact on the ePortfolio practice and may jeopardise its transfer / development.

Initially, in Section 1.1, I suggested that institutions' reluctance or inability to offer their former students' access to the platforms they used during their training to build their ePortfolios was not something that the teachers perceived as affecting whether or not they continued with eP use. Nevertheless, my overall conclusion from the data is that there is a need for a platform – whether hosted by the institution or by the state – which would at least enable and facilitate such activity, given that teachers report that they lack the tools and skills to do so. My findings suggest, however, that even if they had the tools, they would not necessarily do it: what they first need is the impetus to use the tool – the tool itself is secondary.

#### *5.4.3 The 'organisational' group of tensions*

The tensions I group together as 'organisational' concern what Engeström's triangle refers to as the 'division of labour', 'community' and 'rules'. In all three case studies, educators ran training sessions, aimed at introducing trainee teachers to the concept of ePortfolio, and instructing them on how to build one, besides explaining how they would be used in the teaching module. However, their comments about these sessions suggest that in practice, the training was focussed predominantly on the use of the tool (ePortfolio as an object) rather than the process, and on the module's assessment objectives, identifying what was required to pass it. Considering how ePortfolio could be useful beyond the modular requirements, or exploring strategies for using it in a wider context, was not emphasised. Educators' comments are supported by their course notes, which were practical rather than theoretical, offering a step-by-step guide to the tool's technical features (how to produce a page, etc.) rather than focussing on the process: e.g., how to collect information or artefacts, and make sense of them; how to understand what would constitute proof of learning, how to select and identify which artefacts might be useful; how to adopt a reflective position *a propos* the artefacts and make sense of the different elements that were selected. Overall, it appeared that while these sessions supported trainee teachers in using the tool, they offered little to develop their understanding of the purpose behind its use, and what using it could teach or offer them.

In Austria, where students can choose whether to develop an ePortfolio or a paper-based portfolio, as a way of demonstrating their progress at the end of each year, the bulk of the information supplied to them – such as templates, layout, content lists and guidelines, etc. – focuses on paper-based portfolios. Thus, there is a tension between the community (the teacher

training institution) giving them freedom of choice, but supporting one option more than the other. This is something that the Austrian educators are aware of, and express an intention to change in the near future, by imposing the ePortfolio form only and rewriting the support accordingly.

While educators believed that they had given plenty of time to teaching ePortfolio, this was in complete contradiction to teachers' perceptions that the training was too short (an average of three sessions across the case studies – that is, approximately, 2.5 hours) and that classes were too large. However, educators expected that teachers would continue to experiment with ePortfolio in their own time (although this was not something they had done themselves). One solution would be to spread the training over a longer period, rather than putting it all in one session.

In terms of organisation, teachers report that it is difficult for them to accept and understand the dual roles played by educators – as individuals who help them to develop ePortfolio practice but also as the authority figures who assess them at the end; individuals who encourage them to be truthful, honest and open in their ePortfolio practice, but who will ultimately measure them against external criteria. This is particularly clear in the Swiss case study, where the ePortfolio is assessed through a tick-box grid, identifying the presence or absence of an element, a grid which does not indicate clearly to students the basis for the educators' subjective evaluation of their work.

This produces a conflict between what educators claim an ePortfolio should be during the module – a place to reflect, etc. – and how it is assessed. A solution could be to establish a clearer separation between the different purposes of an ePortfolio, alongside training in how individuals can develop the ePortfolio for themselves and how to produce documents that will be evaluated. One example is how the Open University implemented the ePortfolio professional course (H808), where students were required to build an ePortfolio: the ePortfolio itself was not assessed, but students had to write an essay about constructing it, which met certain criteria and sat within certain guidelines (i.e. using reflection, what they had learned in making the portfolio to reflect in the essay).

More specifically regarding RQ-3.1 and RQ-3.2, it is an interesting fact that although my case studies took place in settings where the existing educational and institutional context might have been expected to offer fertile ground for the transfer of ePortfolio practice (see Appendix 12 to 14), my results identified little if any survival of ePortfolios as a product and minimal

evidence of the transfer of ePortfolio practice to the workplace. In France, for example, incentives to develop ePortfolio practice in education exist at a State level, following the publication of “*ePortfolio: enjeux et recommandations*” (Heutte et al., 2012), and at a regional level, with the existence of a regional ePortfolio system (Lorfolio). Despite this, there was a gap between what participants claimed they were doing with ePortfolio and the reality revealed by the study of their practice. Switzerland has a long history of pre-learning skills recognition since 1970’s and has used approaches to assessment similar to ePortfolio for several years prior to my study; in Austria, the institution where my case study took place had a long history of experience with paper-based portfolios, and the leaders of the institution’s ePortfolio project all studied under the same professor, who was a pioneer in developing the use of ePortfolios in Austrian education. Nevertheless, in each setting, regardless of all these elements that might have supported development of ePortfolio practice during and potentially after teachers’ training, educators’ and supervisors’ scepticism about its transfer and continuation was clear.

In this section CHAT helped me to analyse the data in a holistic way by considering the relationships between the different elements of Engeström's triangle. As explained in Section 3.3.5, I decided against using Engeström’s multi-level approach to contradictions, focussing instead on identifying and categorising particular tensions into three different groups. Each group of tensions may influence teachers’ decisions to transfer their ePortfolio practice; and each, in turn, may also be addressed and possibly resolved by one particular group of stakeholders.

In the first group of tensions – relationship – I have put the focus on the collaboration between the ‘subject’ and the members of the ‘community’. In the initial triad formed by ‘subject-tool-object’ the analysis of data reveals a tension between these three elements manifested by the ‘subject’s reported lack of confidence in building their ePortfolio practice and sharing and collaborating within it. Both as trainees and as professionals, teachers reported that although they sought the help of more advanced peers or educators, they did not find it. What they sought may be regarded as Vygotsky’s ZPD, but its absence is not the only missing source of collaboration identified by the CHAT analysis of this activity system. Moreover, teachers also claimed that, both during their training and at the workplace, the ‘division of labour’ – the element that explains who is doing what – although present was not clearly perceived or understood by them and was sometimes modified without explanation nor warning.

Looking at the second triad, ‘rules-community-subject’ – the sub-system that explains how the activity should be done – relationship tensions exist at different levels: lack of rules, or rules not aligned with the ‘tool’ or the ‘object’. For instance, the presence of two ways to present the portfolio – electronically or paper-based – but with fewer resources (‘rules’ and ‘tools’) to help support the development of the ePortfolio practice in contrast to its paper equivalent. A final tension is the absence of another source of collaboration during teachers’ training, between ‘subject-community-object’, in the form of a lack of negotiation of meaning. Looking at this element through the activity system model clearly shows that the lack of negotiation of meaning as a form of collaboration drives ‘subjects’ to develop their individual ‘motives’ for the activity system instead of sharing the same ‘object’ with the different members of the ‘community’.

The technical group of tensions focuses on the relationship between the ‘tool’ and the ‘community’ or the ‘tool’ and the ‘subject’. The aim is to analyse the impact of how the ‘tool’ was chosen by the ‘community’ or by the ‘subject’ on the ‘motive’ and ‘goals’ in the activity system.

The last group of tensions – organisational – underlines the influence of the ‘rules’ and ‘tools’ on the ‘subject’s perceptions of the value created by developing their ePortfolio practice. In the analysis of this final group, the influence of the ‘rules’ on the ‘division of labour’ by the ‘community’ is also established and the influence of the cultural and historical aspect of the settings (more significant in the Swiss and Austrian case studies than in the French) is confirmed.

## **5.5 Limitations of this research**

My research, like all research, has its limitations – some of which I have already reflected upon in the previous chapters – particularly in the areas of methodology and ethics.

In the methodological framework I built for this thesis, I combined elements from two research models: TAM and CHAT. My approach for both was qualitative, although most published literature shows that TAM is generally used with quantitative methods. Some authors also used TAM with qualitative methods, for instance Ng et al. (2013), but Ng et al. interviewed even fewer participants than I did in my study (2 by email and 7 face to face). Abdullah and Ward (2016) also use an adaptation of a qualitative method, with their GETAMEL model which summarises key variables that influence acceptance of eLearning. The study is based on a review of 107 articles where TAM was the research model. Further research should be made to

determine whether TAM might be used either in quantitative, qualitative, combined (qualitative-quantitative) approaches, or whether it is limited to the former.

My assumption that results for existing quantitative studies of ePortfolios using TAM were reliable and could be generalised to my own project is, of course, questionable and further research could be undertaken to validate this hypothesis: for example, building similar case studies to my own which included more participants in the 'teacher' role would permit the use of quantitative methods. In using Engeström's triangle, I categorised educators and supervisors within the 'community' element of each triangle. This could also be disputed: we could consider, in line with the third generation of CHAT, that each role has its own AT triangle in which it takes the role of 'subject' (Engeström and Young, 2001). This makes the model more complex but produces a more accurate reflection of reality because it also considers the tensions that exist within and between the different systems regarding each role (Gedera, 2016). This improvement of the model would also support its holistic/systemic approach, where each element has its own evolution and also contributes to the evolution of the whole; this would also imply using holistic research methods, as Méléze (1972, 1990) suggests with AMS (1972) or De Rosnay with his 'Macroscope' (1979).

A further methodological issue in this thesis is that the number of participants for each role is low. Although it is common for qualitative research in education to be based on small populations ( $n < 10$ ), something which does not affect the quality of the findings for such research, it might nevertheless limit the possibility of generalising from the results. This could be addressed if other studies are run, perhaps focussing on only one case study but with more participants for each group, or by increasing the number of case studies.

I can also identify ethical concerns regarding the neutrality of my study: investigating the field may change the field. But contacts I established with some participants long after I left the field suggest that there have been only some rare exceptions where participants were rethinking, positively, the importance of ePortfolios after having been interviewed; and only one participant subsequently reported trying to build a CoP and set up tools to develop ePortfolio practice among the group of colleagues in his department. So, it seems that my visit to the field has not disturbed it for the better, or the worse. Another important ethical point is the fact that this study was conducted with participants who spoke different languages, and as a researcher, I am not a native speaker of all the languages I used during data collection. Consequently, on my part, and with the limited resources at my disposal, there is still possible bias or error in the interpretation and translation of what was said in different languages during the interviews.

In my final chapter I will discuss recommendations for ePortfolio practice in the light of my findings. I will also reflect on the contribution of my study to research in this field, and suggest further research paths.

## Chapter Six

### Conclusion

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In this final chapter I will suggest ways in which the different ePortfolio stakeholders can promote the transfer and subsequent development of ePortfolio practice. demonstrating how my research contributes to knowledge of ePortfolio practice at practical and methodological levels before outlining possible new fields of study.

#### 6.1 Developing transfer of ePortfolio practice

In the previous chapter, I identified and discussed three groups of tensions, emerging from my data analysis. While these tensions clarify why the outcomes of an activity (in this case, the transfer of ePortfolio practice) are not fulfilled, they may also operate as engines of change, offering ways of resolving the issues – revealing, simultaneously, the origins of the problem and the seeds of its solution.

##### 6.1.1 *Recommendations for supervisors*

Supervisors are the key actors who can address tensions in the relationships between the elements they influence at the workplace - the ‘community’ to which they themselves belong; the ‘rules’ which they can influence as policy makers; and the ‘division of labour’, as they are usually responsible for defining and assessing/monitoring pedagogical standards – and the other elements of Engeström’s triangle. Looking at their role from this perspective could enable them not just to understand the context and impact of the actual organisation around ePortfolio practice, but also to anticipate and to create conditions in which ePortfolio practices may be successfully transferred – fertile ground in which such practices can flourish.

However, as I reported in Chapter 5, there is still a lack of knowledge among supervisors about what an ePortfolio is and how they could use it for recruiting, developing teachers’ career plans and maintaining TQS. Ten years ago, Painter and Wetzell (2005) argued that employers were not ready to accept ePortfolios for pre-employment interviews; my data suggests that this is still the case, although the supervisors I interviewed showed some interest in both the object and the process.

On the other hand, teachers reported that their main concern in continuing with ePortfolio practice is that their work be seen and commented on by others, in line with Garrett et al. (2009)’s suggestion that:

when students know that peers will see their work, it gives it value and persistence. Motivating students and helping them learn, these social learning tools provide the capstone for our proposed system (p. 202).

Supervisors – and, likewise, educators – could provide conditions in which value and persistence in teachers’ ePortfolio practice is sustained by ‘sharing’ and ‘collaborating’. The choice of the right tool is also important in relation to this issue, because as Delandshere and Petrosky (2010) and Thomas and Liu (2012) have shown, some ePortfolio management systems lack ‘collaboration’ facilities (as was the case in the Swiss case study for example).

The teachers I interviewed defined ePortfolio practice as senseless and time consuming, despite having understood and integrated the potential of the ePortfolio’s many faces. Many of them would willingly continue it if the context was clear and the work worthwhile. Evans and Powell (2007) suggest ePortfolio practice may help to develop CoP during teachers’ professional careers. When I suggested to teachers the possibility of building forms of a community of practice (CoP) (Wenger, 1998, 2011), they agreed that this would be a ‘good start to reload ePortfolio practice’ or that they ‘would like to build ePortfolios to share practice and reflect on them’. But all teachers who responded positively to this idea believed it should be organised by the institution, rather than on a voluntary basis, which is not directly in line with Wenger’s definition of CoP. The implication of this is that resources (e.g., time, support, tools, methods) would need to be provided by supervisors. These demands are coherent with Burke and Hutchins (2008)’s survey where half of the participants claimed that the ‘work environment’ was the main influence for transferring and developing learning to the workplace.

Another element supervisors could address is the need for ePortfolio practice as a basis for lifelong learning. In the institutions in the three case studies any further training or continuous professional development took place on a voluntary and personal level, without the institution’s supervision (see Appendices 12 to 14). In France and Austria, professional development courses exist for teachers but there is no obligation to follow any – although this is currently under review. In Switzerland, teachers’ professional development is a right and an obligation, amounting to approximately three days per year, half on paid leave, and half on private time. But schools are not responsible for implementing or overseeing this training, and no incentives are developed to push teachers to improve their skills. During the interviews in the Swiss case study, teachers’ understanding of the issue of professional development was mixed and inconsistent: some believed there was an obligation to continue training after



qualification; others, while aware of their rights and obligations, claimed that they had not engaged with such training for years, because their institutions had not required them to.

It seems, therefore, that by developing conditions where CoP, collaboration and sharing are supported and encouraged, and where teaching standards are clearly articulated and maintained, supervisors could provide a pathway for teachers to transfer and develop their ePortfolio practice at the workplace.

### *6.1.2 Recommendations for educators*

According to Holton (1996), one cause of failure to transfer is that training design rarely provides practical aspects that trigger the transfer of learning. Unfortunately, Holton does not describe what aspects or elements of design nurture such transfer. Yamnil and McLean (2001) take Holton's claim further, pointing out the importance of preparing students for practical and professional activities throughout their training:

cognitive learning may well occur, but program participants may not have an opportunity to practice the training in a job context or may not be taught how to apply their knowledge on the job. So the training itself can have a direct influence on transfer of training (p. 200).

Data analysis of educators' interviews shows (Section 5.4.1) that they rarely present ePortfolio practice to teachers as something they would use after their teacher training. Exercises in using ePortfolios and exploration of their aims are imposed on trainee teachers, as a way of assessing them. Teachers' interviews corroborated this, stating that acquiring ePortfolio practice was not presented as an important tool for their future professional practice. The question is, therefore, how to give trainees a sense of the professional value of ePortfolio practices when data shows that neither educators nor supervisors expect their use to be continued. I would suggest that better collaboration between training institutions and the workplace may be a positive influence here. For example, training institutions could make supervisors aware that they use ePortfolios in teacher training, and explain the rationale behind doing so. Educators could collaborate with supervisors to define together what teachers need to bring with them from the training institution to the workplace, and how ePortfolios can be designed to reflect not only what supervisors require from new entrants to the profession, but also as a framework to support and document teachers' further professional development. As already noted, teachers' perceived usefulness of continuing their ePortfolio practice influences the degree to which they accept engaging with it. Consequently, I would recommend that educators emphasise the professional usefulness of ePortfolio practice more.

Although my data analysis revealed that whether or not educators themselves develop and maintain their own ePortfolio practice had no impact on trainee teachers, I would argue nevertheless that if educators did maintain ePortfolio practice at their workplace, this could illustrate its practical and professional use to their trainees. However, age may be a contributory factor here: digital portfolios are relatively recent additions to the educational toolbox, and educators themselves may not be up to date on this new technology – in the future, perhaps, ePortfolios and ePortfolio practices will be more familiar to them.

Educators have less control than supervisors in terms of the elements they can influence in Engeström's triangle - for instance, when it comes to 'rules' or 'division of labour'. Nevertheless, educators and teachers agree that the different roles they play are often unclear and sometimes contradictory. Teachers most frequently complained about the double role educators took when helping them to build their ePortfolio practice and then assessing them at the final stage. This confusion between different roles can, for Peacock and Murray (2009), lead to students' losing interest in ePortfolio. It may also call to mind the Barrett and Knezek (2003) vs Creme (2005) dilemma of 'what to assess ? / 'should we assess', where the former argue that as an important personal piece which must be a truthful representation of oneself, a portfolio must not be assessed, while the latter claims that everything that is considered as important in training must be evaluated. Addressing the problem of evaluation of ePortfolio practice is beyond the scope of this research but most of the teachers I interviewed, and all teachers in the French case study, complained about a lack of clarity around the evaluation process. Educators must, therefore, be aware of these drawbacks, making every effort to clarify their position as a facilitator and/or evaluator and providing teachers with clear guidelines for ePortfolio practice evaluation.

Teachers' concern that the time dedicated to training in ePortfolio practice was insufficient, and their perception (which their educators also held) that developing such practice is a time-consuming process, is a familiar view, shared by many ePortfolio stakeholders in published literature – see, Ivanova (2017), Belcher et al. (2014) or Evan and Powell (2007). No study exists that identifies the ideal amount of time to dedicate to teachers' training in ePortfolio practice but based on my personal experience as an ePortfolio consultant and trainer, it seems to me that the reported average of 2.5 hours is certainly not enough, especially when the training is given only once and at the beginning of the trainee teachers' ePortfolio project. Moreover, the teachers I interviewed reported that such training was not always implemented by educators, but by support staff.

It would be interesting to study how each of these points - incentives to provide trainee teachers with practical and professional situations where ePortfolio practice was seen as worthwhile in terms of transfer to the workplace; clarification of the roles; and continuous training in ePortfolio practice throughout the whole process of teacher training – could improve professional teachers’ use and development of ePortfolio practice.

### *6.1.3 Recommendations for other ePortfolio stakeholders*

The group of stakeholders in this subsection is composed of other members of staff at the workplace or in the teacher training institution – such as support staff, who, as noted above, are often responsible for implementing ePortfolio training; policy makers; and teachers. In my taxonomy of tensions, I identified ‘technical’ tensions that could be overcome by support staff, including IT departments and eLearning technologists, but not exclusively by them.

My data analysis shows that teachers, supervisors, or educators were not able to achieve tasks with the tools imposed by the institution, a problem which has different origins in each case study (for instance difficulties in using the tools, misconceptions about them, or lack of communication about which features should be enabled). This emphasises the importance of creating a space for discussion within the institution, where each party could share their technical needs but also learn about the limitations of each tool, as well trained and informed IT staff could explain or, even better, overcome them.

Policy makers (i.e. the state, directors of education, headteachers), also have a role to play in creating conditions in which teachers’ ePortfolio practice is transferred to the workplace. As already noted, teachers are ready to do this if certain conditions are fulfilled. One is to have a clear framework on how ePortfolio practice contributes to the development of their professional career. Another would be to benefit from tools maintained by the institution or the state where they could be able to develop their ePortfolios. State initiatives to develop such practice at a national or regional level are increasing, as in France, in Lorraine, with the Lorfolio. Moreover, literature increasingly reports broader initiatives or ePortfolio projects at an international level, such as Europortfolio or the Europass initiative from the European Commission and the Cedefop. Although these initiatives are interesting they are still marginal (Toulouse and Geoffrion-Vinci, 2017; Nowakowski et al., 2013) and often unknown by professionals – only one supervisor I interviewed was aware of the Europass initiative. Strong incentives from policy makers are needed, like those already existing in other countries and professions, such as the obligation to document CPD (with a portfolio) for healthcare professionals in Scotland and

Wales, or the obligation in Australia for professional pharmacists to develop paper-based or ePortfolios to document further training during the first years in practice, or the support the Council of Europe provides for the European Language Portfolio (ELP).

In this research I had not planned to interview staff members and policy makers, therefore suggestions made here do not take into account their perceptions of teachers' ePortfolio practice and the use of ePortfolios at the workplace. Their role is certainly not insignificant in terms of its influence on transfer and development of teachers' ePortfolio practice; this should be researched to enhance my suggested model and provide a more wide-ranging response to RQ-3: What factors influence the transfer of ePortfolio practice?

#### *6.1.4 Recommendations for teachers*

Finally, I would like to present some considerations for teachers. During my interviews, the questions were oriented towards finding what ePortfolio practices were transferred and why, rather than focussing on the steps teachers could themselves take to develop the 'action' of transferring ePortfolio practices to the workplace and their professional practice. Most of the questions I asked were designed to enable me to understand the reasons why they stopped or continued with ePortfolios, and most reasons they gave were external to them. But teachers are also responsible for their behaviour regarding their own ePortfolio practice. Of course, their subjective decision to engage with ePortfolios is influenced by internalising their perceptions of their ease of use, and usefulness; but ultimately, they take the decision themselves. Teachers, like supervisors and educators, are also responsible for identifying and working on 'relationship' tensions such as those I have identified in the previous chapter. Other points could be researched, because not all of the information teachers gave was coherent. For example, they complained that developing and maintaining ePortfolio practice was time consuming but when they were asked to quantify the time they spent building their ePortfolio as trainee teachers, they claimed to have spent an average of 20 minutes per week on ePortfolio tasks. Several authors, such as Nàpoles and Vázquez-Ramos (2013), produced similar findings about students' distorted perceptions of time spent on a task. It is important that trainees are granted enough time to accomplish the task designed to develop their ePortfolio practice, and that expectations of how much time they will spend are clear and coherent. Embedding ePortfolios in the curriculum must also be given enough space and time. When educators underestimate the time a task requires, it may negatively impact the trust students place in the pedagogical relationship.

## 6.2 Contribution to knowledge

In this section, I will outline what my research offers in terms of its development of a new methodology for analysing ePortfolio practice, before exploring its relationship both to existing studies of ePortfolios in education, and to developments in my own professional practice, in the light of what I have learned.

### 6.2.1 *Methodological contribution*

My literature review revealed that there is a gap in research about the transfer of ePortfolio practice to the workplace generally, and specifically in the field of teacher training. I also noticed that while many articles on ePortfolio practice appeared to focus on students, they were in reality about how ePortfolios can help evaluators to assess students' work, and the literature review also highlighted the existing gap in terms of methodology in research on ePortfolios and ePortfolio practice.

In starting this research, I presented a model (see Chapter 1) addressing the tensions between the two faces of ePortfolios, by focussing teachers' training on ePortfolio practice (the process) rather than on how to build ePortfolios (the product). I then suggested a new methodological framework, combining two approaches, TAM and CHAT. The new reading I make of the two combined theories is a contribution which could produce further research to complement my findings; although, as I reflect below, in Section 6.3, this model could certainly be improved, criticised, or enhanced.

### 6.2.2 *Contribution to ePortfolio and teacher training research*

I decided to focus my research on teacher training given that it was my own professional background. The difficulties I had in building the different case studies (see Chapter 3) forced me to engage with settings in three different countries. However, what I perceived initially as a drawback which made it difficult to compare and generalise findings from data collected in different languages, cultures and teaching systems, turned out instead to show that each group of participants shared most of the others' concerns and perceptions about ePortfolio practice, regardless of the social and geographical variables. Moreover, this was also true when analysing data from other interviews I conducted in Australia, New Zealand and the UK during the construction of the case studies, where it was ultimately not possible to establish a coherent triptych composed of teachers, educators, and supervisors (an issue discussed in Chapter 3). Rejected participants from each group also shared the same concerns and talked about similar

experiences and perceptions of ePortfolio practice. For example, a foreign language teacher in Auckland described the lack of collaboration in building their ePortfolio during the last two years of their teacher training courses. They were frustrated that they could never show their progress to their educators and were finally asked during an oral exam to present – in five minutes – the content of one page of their ePortfolio for assessment. They claimed that this experience, which they categorised as ‘bad’, because of the amount of work they put into it compared to the limited opportunities they had to talk about it, was the main reason why they did not continue with ePortfolios in their professional practice.

In the literature review, I presented the few published articles I have found on the transfer of teachers’ ePortfolio practice but none of them tried to reconnect with former trainee teachers after a few years of professional experience to see how they transferred and developed such practice. In that sense, I consider that my work is a useful contribution to the study of teacher training and of ePortfolio practice.

### *6.2.3 Contribution to professional practice*

This research has had repercussions for my personal practice in my different professional roles. Through conducting it, I developed a clearer command of how to set up a methodological framework and use data collection and analysis, which has influenced how I advise my own school students writing their final year dissertation. I was also able to use my findings to adapt my approach to using ePortfolios in my own training for teachers, adding and testing ideas as they emerged during the research process.

Besides changes in my own practice, my research has a wider impact, offering foundations upon which ePortfolio stakeholders can build in developing an ePortfolio project, and supporting its contribution to successful and sustained development of learners’ ePortfolio practice. My findings can also, by analogy, provide a key for understanding learners’ behaviours in relation to ePortfolio practice, and may be extrapolated both to existing ePortfolio projects and to other contexts. My contribution to practice includes my model of ePortfolio practice (Figure 1-1) and my research framework, both of which give a broader understanding of how learners’ ‘internal’ and ‘external’ variables may impact upon their engagement in ePortfolio practice.

This research also has limitations, which I discussed in Chapter 5: it would be interesting to run similar studies in other fields in education to see how far it is possible to generalise the findings and confirm the solidity of my suggested model and methodology. Alongside this

research, I had the opportunity, in my role as a consultant, to work for two nursing schools in Switzerland, helping them to design a syllabus for a new four-year MA programme. One of these schools is now in year three of the syllabus, with three different cohorts of trainee nurses studying for the MA. In building the syllabus, I was able to take into account what I had learned from the different iterations of ATePP for this research, and present my findings at the end of each year at the Francophone Moodle meeting. Results indicate that, having followed the model of ePortfolio good practice and the recommendations for developing it, the trainee nurses report positive perceptions of the usefulness of ePortfolio practice for their learning. Results also suggest that the first cohort of trainee nurses (who will graduate in 2018) are willing to transfer their ePortfolio practice to the workplace. To verify this, we still have to wait until they are in their professional practice subsequent to graduation, a potential follow-up to this thesis.

### 6.3 Proposals for further research

Among the few studies on transfer of teachers' ePortfolio practice I have mentioned in Chapter 1 is the research of Barrat et al. (2014) who studied the intentions and the reality of newly qualified teachers (NQTs) continuing their ePortfolio during their probationary year. In my research, two out of the three settings for the case studies also have an overlapping period of probation before teachers are fully qualified. It would be interesting, therefore, to compare Barrat et al.'s results with the Austrian and French teachers in these probationary contexts. My actual findings cannot serve as reference in that case because Barrat et al. have followed trainee teachers from their last training year to the end of their probationary year: my study starts where theirs finished.

Regarding my research framework, I have already suggested in the previous section that further research could be undertaken with a third-generation version of Engeström's approach, where each role possesses its own triangle. Given its roots in social and historical methodologies, it would also be interesting to run the same study I made at different times to identify changes, and where each triangle, one for each iteration of the study, could be stacked on the previous one. With such a framework, not only the tensions would be represented by the triangles, but also their evolution through time, permitting a more in-depth understanding of the variables influencing teachers' ePortfolio practice. One drawback would be that this might overcomplicate the model which must aim at producing a representation of reality as accurate to the original as possible while simultaneously simplifying reality to make it legible. Complexity and complication are not the same and the latter must prevail over the former. It would also be worth considering embedding the notion of 'motivation' for transferring

ePortfolio practice within the Engeström triangle, instead of drawing upon elements of TAM, as my ATePP framework does. There are different approaches to analysing motivation. Vygotsky (1985), for instance, on whose work the first generation of CHAT is based, emphasises the concept of ‘internalisation’, the process by which individuals develop their own consciousness and their own determination, although his ideas here have attracted criticism – see Gal’perin (1992) for example. Vygotsky defines ‘internalisation’ as the process by which individuals develop their own consciousness and their own determination. Another approach is Deci and Ryan (1985)’s self-determination theory (SDT) in which they describe the concepts of ‘intrinsic’ and ‘extrinsic’ motivations, suggesting that intrinsic motivation – doing an activity for inherent satisfaction – is a more important and pervasive force than extrinsic motivation – doing an activity to attain an extrinsic, separable outcome. They also argue, in the context of education, that extrinsic motivations become much more important than intrinsic but last less long. Although Vygotsky’s concept of ‘internalisation’ relates to children’s language acquisition, and SDT is strongly rooted in the field of psychology and education, whereas the subject of my research is embedded in technology (TEL), these two approaches, and in particular SDT, could shed a different light on my results.

There are also other proximal technologies that may impact upon decisions to transfer ePortfolio practice and which should be researched. Of these, I believe that Open Badges and the Blockchain are two that may have a particularly significant impact on ePortfolio practice in the near future. An Open Badge is a simple image file in a png format, which symbolises visually the attainment of a skill or group of skills: owning the badge indicates attainment of the skills it represents. The image file also contains metadata which provides, amongst other things, information about who created and issued the badge, and what evidence the badge owner had to provide in order to receive it. Badges can be related to micro-competences or macro-competences, to hard- and soft-skills. They now enable institutions to deliver recognition of skills attainment not only at the end of training (with a diploma, certificate, etc.) but also during training. They are therefore more versatile than today’s institutional credential systems as a way of recognising learners’ achievements.

For many authors, ePortfolio and Open Badges are complementary (Gibson et al., 2015; Tammets and Laanpere, 2014). Mewburn (2017) particularly emphasises that:

A digital badge without an eportfolio, or another obvious and easy location to show it off, cannot perform like a badge with symbolic capital – it’s an image file that has unrealised potential. (p. 49)



Publicly available badges open new ways for teachers, educators, and supervisors to find people with particular skills. If the ePortfolio is a place for gathering, reflecting upon, and presenting artefacts proving personal achievement, having these achievements sanctioned by issuing a badge that may be displayed in the ePortfolio, as well as searched and found by other practitioners, could encourage teachers to transfer their ePortfolio practice to the workplace.

The impact of Open Badges on strengthening interest in ePortfolios and ePortfolio practice is also reinforced by the Blockchain, a technology developed to secure crypto-currency transactions (such as those using Bitcoin). In the past three years, use of Blockchain has been expanded to securing all types of transactions, including Open Badges, by validating that the skills they represent have genuinely been attained. In the technology underpinning the Blockchain, the trust of one transaction is not centralised but shared and recorded in different places, and based on the trust of the previous transaction in the chain, thus creating a chain of 'bit of trust'. As Ravet (2016) or Jan (2017) argue, using the Blockchain will have an impact on the extent to which ePortfolios can be considered as places of certified and authentic artefacts. As this may therefore improve stakeholders' perception of their usefulness and consequently influence teachers' decisions to transfer their ePortfolio practice to the workplace, these technologies and their impacts on ePortfolio practice should be investigated. Eymon and Gambino (2017) already consider that badges are one of the future paths for ePortfolio practice, as do Jan and Ravet (2016) regarding the Blockchain. Questions to be researched in that field could be:

- whether and how Open Badges could replace the 'product' face of ePortfolios
- how Blockchain technologies could sustain the value of assessment ePortfolios

In my case studies, trainee teachers' ePortfolio practices were supported by ePortfolio management systems (e.g., Lorfolio, Mahara) but there also exists a current of thinking (Ravet, 2016; Jan, 2016) that suggests the development of an 'open portfolio'. Already the Open Portfolio Project (OPP) has developed a common framework (Chang et al., 2016) for supporting ePortfolio practice with an openly networked, decentralised, and distributed system of documentation, curation, and reflection. Looking at an ePortfolio as a set of bricks from different tools instead of a monolithic software may impact upon ePortfolio practice and transfer, as learners would have the freedom to choose which service suited them best according to their need for collecting, sharing, reflecting and publishing their achievements.

But among all the ultimate questions, thinking back to my anecdote from the Prolegomena – where I was surprised that none of the ePortfolio experts present at the ePIC conference were maintaining an ePortfolio – it would be worth asking how this thesis or further research on ePortfolio practice will change our own ePortfolio practice as ePortfolio stakeholders, when we now know that our ePortfolio behaviour has absolutely no influence on learners' choices to engage or transfer.

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## Appendix 1 – A brief history of portfolios and ePortfolios

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The use of portfolios in education is often associated with the development of progressive education movements at the turn of the nineteenth century, with their focus on holistic and personal learning and with widening access to education. Such an approach can be exemplified, for instance, by the work of Ovide Decroly (1871-1932) in Belgium, and Fritz Karsen (1885-1951) in Germany. Decroly belongs to the nineteenth-century tradition of the medical doctor-educator<sup>17</sup> (and a fuller development of his theories may be found in Decroly & Wagnon (2009) or in Troger & Ruano-Borbalan (2017)). His main objective was to develop a pedagogy around students' 'centres of interest', considering learning as a holistic process which must be addressed with a 'global method' (Meirieu, 1989). This objective led him to ask his students to create and maintain a 'book of proofs'<sup>18</sup> in which they accumulated drawings, texts, and other personal documents (Phaneuf, 2010).

In Germany, Fritz Karsen was moving towards a similar approach with his own students. Karsen is considered the father of two pedagogical reforms in Germany – one under the Weimar Republic, between the First and the Second World War, and the second after his exile in the USA when the US Government proposed he "return to Germany to reform education there" (Tsvetkova, 2013, p. 170). In 1924, in Berlin, Karsen developed a school system of the 'second chance', which opened university classes to students who had previously abandoned their studies – often in circumstances arising from the outbreak of the First World War – and built syllabuses which enabled workers to return to school and complete their education. Karsen put each student's work in a 'work folder'<sup>19</sup>, together with all the notes he took on them, and argued that browsing this folder, which contained the history of his students' progress, improved the quality of his assessment of them at the end of their training (Klampfer, 2012, p. 14). Decroly and Karsen were certainly not isolated cases: other, similar approaches include Adolphe Ferrière's 'life notebook',<sup>20</sup> the Waldorf School's 'year book'<sup>21</sup>, or the 'little green book'<sup>22</sup> of the Oldenwaldschule (Häcker, 2007), for example.

Whereas such developments in the first half of the twentieth century emerged from within an existing educational sector, albeit at the progressive end of the spectrum, the modern story

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<sup>17</sup> With e.g., Maria Montessori in Italy, Édouard Claparède in Switzerland, Jean-Marc Gaspard Itard in France, or Januz Korczak in Poland

<sup>18</sup> In French Decroly calls it '*Livre de preuves*'

<sup>19</sup> Karsen calls it '*Arbeitsmappen*' in German

<sup>20</sup> In French Ferrière calls it '*Cahier de vie*'

<sup>21</sup> '*Jahresheft*' in German

<sup>22</sup> '*olivgruenen Heft*' in German

of portfolios in education arose within a different context – at the end of the Second World War, with the reinsertion of soldiers into civil society. When soldiers returned home to take up the jobs or training they had left, or to start anew, they invariably had gaps in their professional development. Meanwhile, they had also acquired new skills during their military duty, and intense experience of life. During their absence, however, women had replaced men in the workplace and had themselves acquired new, and previously unanticipated skills. Besides redefining the roles of gender in society, this period was also one which gave minorities who had been discriminated against in terms of their race or religion, the opportunity to negotiate access to positions in society from which they were excluded before the war (Tomlinson et al., 2005; Schiffman, 1949).

A central problem shared by these groups was to find a way to list and acknowledge the sum of their informal skills and transform it into access, either to studies, for some, or to the workplace, for others. It is in this context that the modern sense of portfolios, in form and practice, emerges. This is still a relatively undocumented field in terms of scholarly literature: for a development of the subject see e.g., Beach (2008). But evidence exists that in Australia, the UK and New Zealand formal exams to evaluate skills were replaced or complemented with other proofs of attainment, such as reflective journals and practical assessments (Brickell, 2010). Michaud (2010) also reflects on the effect of the Second World War on the development of skills assessment with portfolio:

After the Second World War, women with professional responsibilities asked for their skills to be recognised. Those skills were acquired by concrete professional experience but outside the school system. Written testimonies and assessments of such experiential situations were the preliminary design of what we now call a competence-based portfolio directed towards professionalization<sup>23</sup> (p. 50)

Given the emphasis of my research project, it is interesting to note that the emergence of portfolios in their modern sense is from the beginning connected with both education and employment. It is the connections and relationship between these two areas that my thesis examines.

Educational portfolios became increasingly established in adult education in the 1970s (Brown, 2002) followed by a shift to schools during the next decade (Belanoff and Dickson,

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<sup>23</sup> The original text in French is: “Après-guerre, les femmes qui avaient occupé des postes de responsabilités, demandèrent la reconnaissance des compétences acquises. Ces compétences étaient mises en œuvre à travers des réalisations concrètes en dehors du cadre scolaire. Les témoignages écrits et attestations de ces situations expérientielles constituaient déjà une première ébauche d’un portfolio de compétence orienté vers la professionnalisation.”

1991; Elbow and Belanoff, 1986), mostly to assess college students' writing (Barrett, 2003), art (Castiglione, 1996; Paulson et al., 1991) or foreign language skills (Kohonen, 1999; Cohen, 1994). In the USA, the rapid spread of using portfolios to assess students' skills can be linked to widespread contemporary assertions that the American school system was failing. Such fears were substantiated by the publication of 'A Nation at Risk' (National Commission on Excellence in Education, 1983), an open letter to all American citizens produced by then President Ronald Reagan's National Commission on Excellence in Education. Subsequent critiques of the American school system focused on its failure to prepare students for employment. Higgerson (1993) writes:

(...) industry leaders argue[d] that public higher education has been allowed to spend increasing state revenues at tax payer expense only to deliver an ever deteriorating product, the graduate who is ill prepared to assume her or his place in the business world. (p. 2)

Industry leaders also complained that they had to develop their own on-the-job training to prepare graduate employees to become efficient and fully qualified for their work. In response to this, and building on the experience of using portfolios in secondary education, portfolios attracted the interest of other institutions in higher (HE) and further (FE) education as a way of obtaining a more accurate assessment of students' skills. On the east coast of the USA, statewide projects to implement portfolios in the curriculum as tools for fostering reflective learning and career planning developed rapidly (Wiggins, 1990). Increasingly, portfolio use combined assessment and evaluation of academic skills with a focus on developing those skills which could be carried beyond formal education, and which were transferable and applicable to a wider range of situations. In 1990, a survey of the American Council on Education (1989) reports that 70% of American colleges and universities are already using other assessment methods such as portfolios –25% to assess students 'long-term outcomes' and 50% planning to do so.

The turn of the millennium also coincided with the development of an electronic or digital version of the portfolio; initially called a 'web-based portfolio' or 'webfolio', before the appearance of the term 'e-portfolio', now commonly spelled 'ePortfolio', with the prefix 'e' meaning digital or electronic. But while FE shifted rapidly from analogic (that is, paper-based) portfolios to digital portfolios, as Barrett (2003) points out, this was not the case in the primary and secondary sector. The secondary-tertiary divide in terms of IT equipment can be seen as a key element that explains the limited take-up of ePortfolios in secondary education, at a time when they were becoming more widespread in HE and FE. We find evidence of this divide in

Europe, Australia and in North America for example in Wagner (1999) or in Hickling-Hudson (1992). From the point of view of my own research project, which investigates practices established during tertiary education (university), this division between the sorts of portfolios adopted by each educational sector led me to focus on ePortfolios rather than paper-based portfolios.

## Appendix 2 – Some considerations on the literature review

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For some authors (Hammersley, 2006; Rowley and Slack, 2004; e.g., Webster and Watson, 2002), the methodological framework of the research impacts upon how researchers must engage with their literature review. For example, Palfrey and Gasser (2010) advises those using Grounded Theory (GT) as their methodology to enter the field fresh, with only ‘foreshadowed’ ideas of what to search for, and to engage with the literature review in order to reflect on ‘excavated’ theories, grounded in data. When I started this research, I was driven by the idea of using GT as my main research framework. Consequently, I operated a constant back and forth movement between the field of study and the literature, in line with Gasser’s recommendation. After my first year, however, I moved towards Cultural Historical Activity Theory (CHAT) as a stronger framework to support my research. I develop the reasons for this change in direction in more detail in Chapter 3. This change in my perspective, from GT to CHAT, impacted upon how I conducted the literature review, as a consequence of the change in how I was interacting with the field. With GT, I was listening and responding to the field without specific expectations: whereas with CHAT, while I still conducted my interviews and reviewed the literature from an open-minded position, I was also aiming to find data that could explain the results within a CHAT framework – for instance, that would reveal tensions and relationships between different elements.

Since my research framework has changed and evolved during my research, my literature review has as such been an infinite process which can be represented as in Figure A2-1. First, I selected keywords, relevant to each element of my study, before using tools (e.g., web crawlers, Google alerts) to find published articles on the web and in libraries. Each week, the search was updated. If new keywords emerged from my reading of new material, I adapted the search process to constantly provide new material focussed on my research topic.



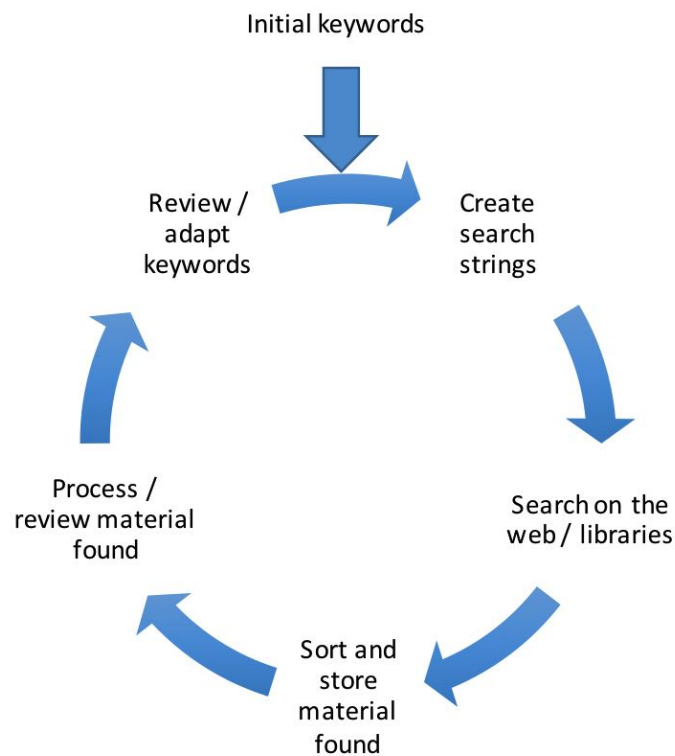


Figure A2-1: *Literature review process*

The relevance of keywords changed with time, drawing on those already used in previous papers and the quantity and quality of material they produced. To measure and assess the quality of the material found, I used several criteria, such as the number of other articles published by the authors on a specific subject, Google Scholar's h-index and h-core metrics<sup>24</sup>, and the date of publication. I created symbolic links between documents to interconnect concepts addressed by different articles. I exported these interconnections, creating concept maps in Xmind, a commercial mind-maps software, to represent the relationships graphically and reflect on them (see figure above).

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<sup>24</sup> <https://scholar.google.com/intl/en/scholar/metrics.html#metrics>

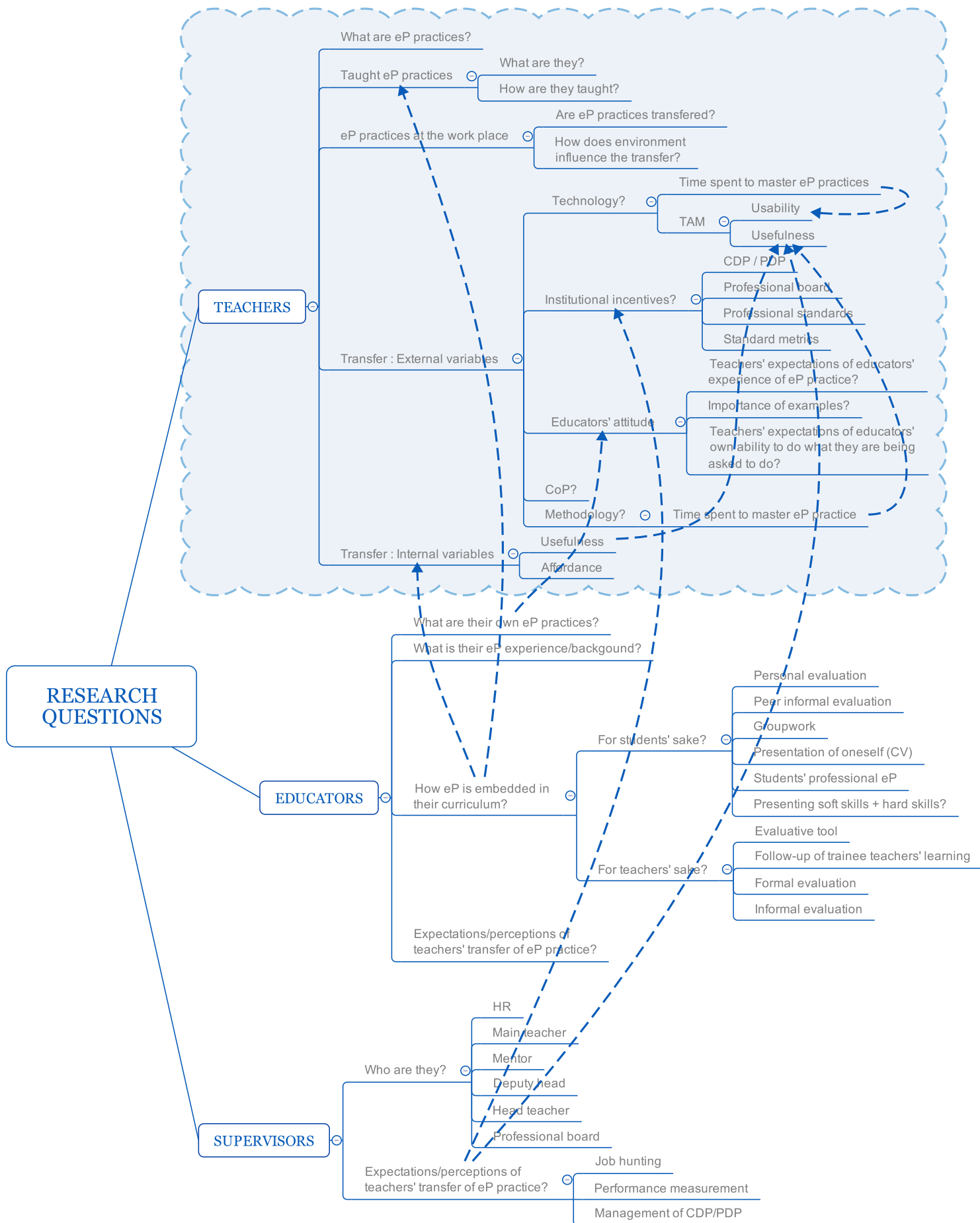
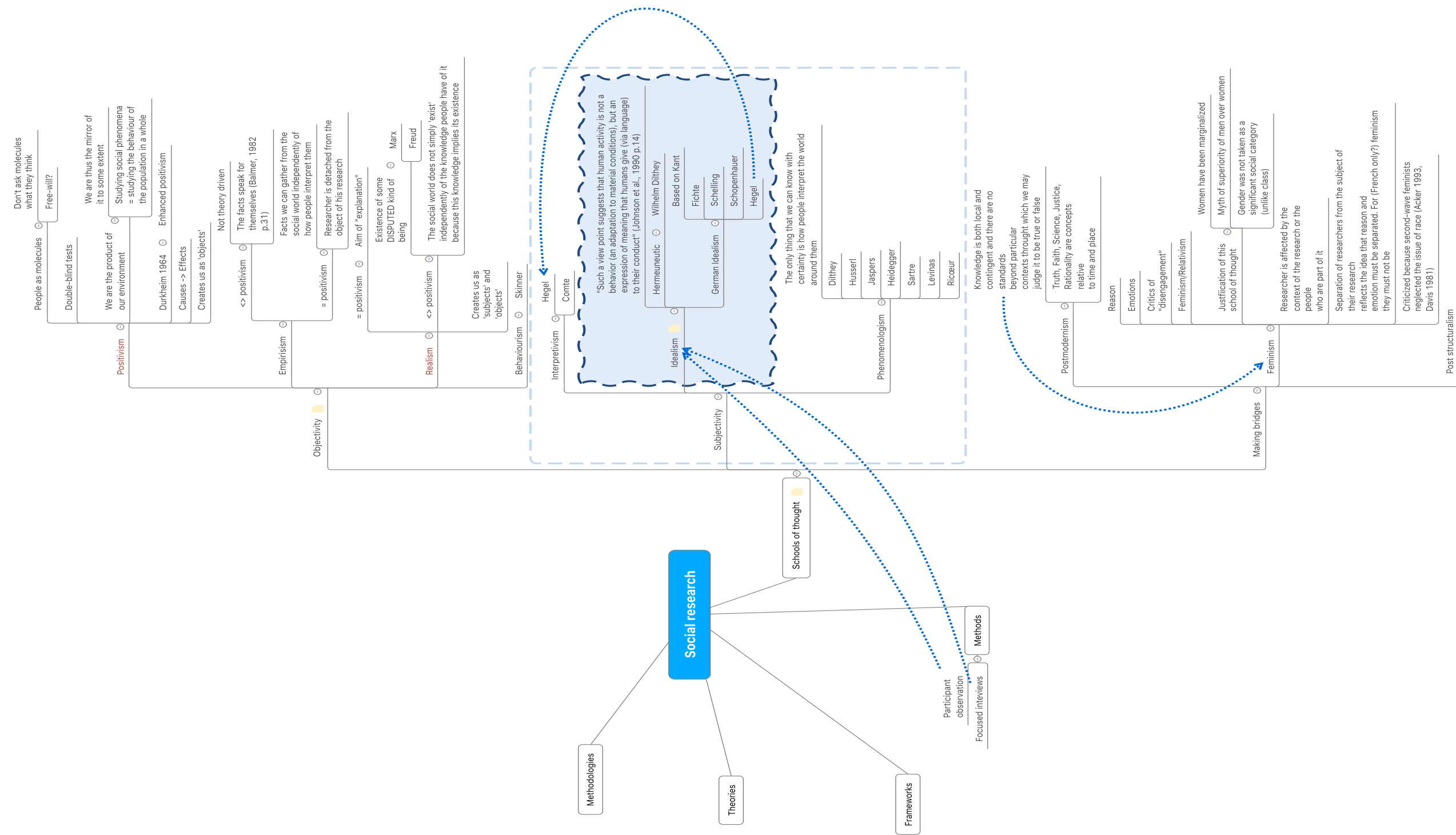


Figure A2-2: Reflection and links between different concepts for study in this thesis

Appendix 3 – Personal notes on key concepts in my search for a conceptual framework



## Appendix 4 – List of groups on diverse networks used to recruit participants

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Groups	Social network	Members	URL
Eportfolios Community of Practice	Facebook	192	<a href="https://www.facebook.com/groups/145961032117370/members/">https://www.facebook.com/groups/145961032117370/members/</a>
AAEEBL ePortfolio Conversations	Facebook	71	<a href="https://www.facebook.com/groups/aaeebleportfolioconversations/">https://www.facebook.com/groups/aaeebleportfolioconversations/</a>
Students for the abolition of ePortfolio	Facebook	54	<a href="https://www.facebook.com/groups/194226010620565/">https://www.facebook.com/groups/194226010620565/</a>
Eportfolio Support	LinkedIn	555	<a href="https://www.linkedin.com/groups/3075532">https://www.linkedin.com/groups/3075532</a>
ePortfolio Community of Practice	LinkedIn	649	<a href="https://www.linkedin.com/groups/3760422">https://www.linkedin.com/groups/3760422</a>
Mahara	LinkedIn	311	<a href="https://www.linkedin.com/groups/2037561">https://www.linkedin.com/groups/2037561</a>
ePortfolio Australia	Google+	33	<a href="https://plus.google.com/u/0/communities/108206678386283984132">https://plus.google.com/u/0/communities/108206678386283984132</a>
ePortfolios	Google+	90	<a href="https://plus.google.com/u/0/communities/108206678386283984132">https://plus.google.com/u/0/communities/108206678386283984132</a>
AEEBL ePortfolio	Google+	130	<a href="https://plus.google.com/communities/106514891749320105482">https://plus.google.com/communities/106514891749320105482</a>
ALT-Members	ListServ	(na)	<a href="http://jiscmail.ac.uk">http://jiscmail.ac.uk</a>

### Project Information Sheet

My name is Dominique-Alain Jan and I am writing a doctoral thesis with the Open University on ePortfolio practices in the work place.

#### What is my project about?

My project is a study of how ePortfolio practices taught in higher education pass into the workplace when students graduate, and start their professional careers. The aim of my study is to investigate what motivates people to continue (or abandon) the ePortfolio practices they initiated during their student days, and how/whether these practices change once they have made the transition into the workplace.

#### Who am I looking for?

As a researcher, I am looking for

- graduate students who have used an ePortfolio during their university education/formal training, and who are now in their first three years of employment. I am interested both in those graduates **who have continued** with ePortfolio practices, and in those **who have stopped**;
- teachers who have introduced ePortfolio practice in their curriculum and were in charge of the former graduate students;
- employers who are employing the former graduate students. I am interested in their testimony regardless they are involved or not, aware or not, of ePortfolio practice in their company.

#### How can you help?

If you agree to take part in this study, I will send you a consent form explaining how your data will be collected and used and your participant's right to see your identity and data protected. You will also receive a pre-questionnaire which will take you a few minutes to answer. After having received the completed consent form and pre-questionnaire back from you, I will contact you to schedule a 30 minute interview by telephone at my expense or by Skype.

#### What will I do with your information?

Your information remains your property and you can decide to withdraw from the study at any time before its end. Your information will be compared to other participants' and to information I would be receiving from your educators and/or employers if you agree with this. Your data will form the corpus of my thesis which will be available to you when published. After publication your data will be destroyed and I will send you a letter confirming this.

This project has been approved by the Human Participants and Materials Ethics Committee at the Open University, under HREC/2013/1424/Jan/1

#### Want to know more? How can you contact me?

If you want to contact me or if you have any questions, please feel free to send me an email at [djan@mac.com](mailto:djan@mac.com), call me on my professional telephone number +41 79 240 70 10 or contact my main supervisor Dr Jan Moreland at [jan.moreland@hotmail.co.uk](mailto:jan.moreland@hotmail.co.uk).

I am looking forward to hearing from you soon. Thank you for your time.

### Informations sur le projet de recherche

Mon nom est Dominique-Alain JAN ; je suis entrain d'écrire une thèse de doctorat à l'Open University de Londres sur le thèmes des ePortfolios et du transfert des pratiques de lieu de formation à celui de la place de travail.

#### Quel est mon projet ?

Mon projet porte sur l'étude des transferts des pratiques apprises en formation initiale sur le lieu de travail, en ce qui concerne les ePortfolios. Le but de cette étude est de comprendre ce qui motive les jeunes diplômés des écoles supérieures à continuer ou abandonner des pratiques de ePortfolios apprises durant les études. Je m'intéresse aussi à lier ces comportements aux attentes des formateurs en techniques de ePortfolios et à celles des membres des ressources humaines auxquelles le jeune diplômé doit désormais rendre compte.

#### Quels types de participant je recherche ?

En tant que chercheur, je suis intéressé par :

- de jeunes diplômés au début de leur carrière professionnelle (3 à 5 ans d'expérience professionnelle), et qui ont dû créer et maintenir un ePortfolio durant leur formation. Je suis intéressant tout autant par celles et ceux qui ont continués d'alimenter un ePortfolio que par celles et ceux qui ont abandonnés cette pratique.
- des formateurs, enseignants qui ont appris l'usage du ePortfolio aux étudiants qui sont aujourd'hui inséré dans la vie active
- des employeurs qui emploient les jeunes diplômés et sont responsables de leur formation continue

#### Vous pouvez m'aider !

Si vous acceptez de participer à mon étude, je vous enverrai un formulaire de consentement éclairé à me retourner signé, afin que vous soyez informé de vos droits dans cette étude. Vous recevrez aussi un pré et un post questionnaire qui ne vous prendront que quelques minutes à y répondre. Je vous contacte ensuite pour une interview semi dirigée qui se déroulera selon votre convenance par téléphone, en présentiel, ou par Skype.

#### Que deviennent les informations que vous me donner ?

Vos informations restent votre propriété, et vous pouvez décider en tout temps et sans justification de sortir de l'étude, avant que celle-ci soit terminée. Vos informations seront étudiées et comparées avec celles d'autres participants. Vos données formeront le cœur de ma thèse qui sera à votre disposition une fois sa publication faite. Après la publication de la thèse, toutes vos données seront détruites et vous recevrez un message ou une lettre confirmant cela.

Ce projet a été accepté par le comité d'éthique « Human Participants and Materials Ethics Committee » de the Open University, avec la référence HREC/2013/1424/Jan/1

#### Comment me contacter si vous avez d'autres questions ?

Si vous désirez me contacter, vous pouvez le faire librement en envoyant un message à mon adresse email [djan@mac.com](mailto:djan@mac.com), ou en m'appelant pendant les heures de bureau au +41 79 240 70 10. Vous pouvez aussi contacter mon superviseur principal Dr Jan Moreland at [jan.moreland@hotmail.co.uk](mailto:jan.moreland@hotmail.co.uk).

Je me réjouis de vous voir prochainement participer à cette étude et vous remercie pour votre temps.

### Informationen zum Forschungsprojekt

Mein Name ist Dominique-Alain JAN; Zurzeit schreibe ich an der Open University in London eine Doktorarbeit zum Thema ePortfolios und der Übertragung von Praktiken vom Ausbildungsort auf den Arbeitsplatz.

#### Was ist mein Projekt?

Mein Projekt konzentriert sich auf die Untersuchung des Transfers von Praktiken, die in der Erstausbildung am Arbeitsplatz erworben wurden, in Bezug auf E-Portfolios. Der Zweck dieser Studie ist es, zu verstehen, was junge Hochschulabsolventen dazu motiviert, während des Studiums erlernte ePortfolios weiterzuführen oder aufzugeben. Ich bin auch daran interessiert, diese Verhaltensweisen mit den Erwartungen der E-Portfolios und der HR-Trainer zu verknüpfen, zu denen der Absolvent jetzt berichten muss.

#### Welche Arten von Teilnehmern suche ich?

Als Forscher interessiere ich mich für:

- junge Absolventen zu Beginn ihrer beruflichen Laufbahn (3 bis 5 Jahre Berufserfahrung), die während ihrer Ausbildung ein ePortfolio erstellen und pflegen mussten. Ich interessiere mich genauso für diejenigen, die weiter ein E-Portfolio gefüttert haben als diejenigen, die diese Praxis aufgegeben haben.
- Trainer, Lehrer, die die Nutzung des E-Portfolios für Studenten gelernt haben, die jetzt in der Belegschaft sind
- Arbeitgeber, die junge Hochschulabsolventen beschäftigen und für ihre Weiterbildung verantwortlich sind

#### Sie können mir helfen !

Wenn Sie sich bereit erklären, an meinem Studium teilzunehmen, sende ich Ihnen ein Bestätigungsformular zu, das Sie mir unterschrieben zurücksenden können, damit Sie über Ihre Rechte in dieser Studie informiert werden. Sie erhalten auch einen Fragebogen vor und nach dem Posteingang, der nur ein paar Minuten dauern wird. Ich werde Sie dann für ein Interview kontaktieren, das per Telefon, Face-to-Face oder Skype durchgeführt wird .

#### Was passiert mit den Informationen, die Sie mir geben?

Ihre Informationen bleiben Ihr Eigentum, und Sie können jederzeit und ohne Begründung entscheiden, die Studie zu verlassen, bevor sie abgeschlossen ist. Ihre Informationen werden untersucht und mit denen anderer Teilnehmer verglichen. Ihre Daten werden das Zentrum meiner Diplomarbeit bilden, die Ihnen nach der Veröffentlichung zur Verfügung steht. Nach der Veröffentlichung der Dissertation werden alle Ihre Daten vernichtet und Sie erhalten eine Nachricht oder ein Schreiben, das dies bestätigt.

Dieses Projekt wurde von der Ethikkommission "Human Participants and Materials Ethics Committee" der Open University mit Referenz HREC / 2013/1424 / Jan / 1 angenommen.

#### Wie können Sie mit mir Kontakt aufnehmen, wenn Sie anderen Fragen haben?

Wenn Sie mich kontaktieren möchten, können Sie frei eine Nachricht an meine E-Mail-Adresse [djan@mac.com](mailto:djan@mac.com) schicken, oder mich während der Bürozeiten unter der Nummer +41 79 240 70 10 anrufen. Sie können auch meine Hauptbetreuer kontaktieren Dr. Jan Moreland unter [jan.moreland@hotmail.co.uk](mailto:jan.moreland@hotmail.co.uk).

Ich freue mich darauf, Sie bald an dieser Studie teilnehmen zu sehen und danke Ihnen für Ihre Zeit.

Dr. Dominique-Alain JAN



### CONSENT FORM

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I have read and understood the Project Information Sheet or been informed about the research called “An investigation of students’ practice in maintaining ePortfolios after graduation and at the start of their professional career”.

By signing this document I reserve the right that:

- I can ask questions about the study at any time
- I can withdraw from the study at any point, without penalty
- I will be able to access the results of this study after the thesis has been approved and published
- my confidentiality will be protected
- all the data I will provide the researcher will be anonymised and encrypted

By signing this document I also understand that:

- I give the right to use the data and information I provide, for educational research purposes only, including publication
- I give the right that interviews are recorded
- I give the right to the researcher to access the whole or parts of my ePortfolios or other tools I use as ePortfolios
- all data will be stored only on the researchers’ external hard disk on a encrypted folder

I have been informed that if I have any queries or problems I should contact

Dominique-Alain Jan, EdD research student at the Open University (UK), email [djan@mac.com](mailto:djan@mac.com).

If I want to talk to someone else about the project I can contact one of the researcher’s supervisors: Dr Jan Moreland ([jan.moreland@hotmail.co.uk](mailto:jan.moreland@hotmail.co.uk)) or Dr Inma Alvarez ([inma.alvarez@open.ac.uk](mailto:inma.alvarez@open.ac.uk)) at the Open University.

I agree to take part in this study.

Name : ..... Date : .....

Signature: .....

Please return this signed Consent Form to me by mail at [djan@mac.com](mailto:djan@mac.com), as an attachment.

Thank you again for taking part in the study.



### Acceptation de participation à l'étude

J'ai lu et compris le document « Informations sur le projet de recherche » ou j'ai été informé de la recherche à laquelle j'accepte de participer et qui se nomme « *An investigation of students' practice in maintaining ePortfolios after graduation and at the start of their professional career* »

En signant ce document je me réserve le droit :

- de poser en tout temps toutes les questions que je juge utiles sur ma participation dans le projet de recherche ;
- de me retirer librement de l'étude en tout temps et sans évoquer de raison ;
- d'accéder aux résultats ainsi qu'à l'ensemble de la thèse, une fois que celle-ci aura été approuvée et publiée ;
- d'avoir mon identité ainsi que les données confiées protégée contre un usage abusif par des tiers ;
- d'avoir toutes les données confiées pour la recherche anonymisées et encryptées.

En signant ce document je comprend en outre que je donne le droit à ce que :

- les données et les informations produites soient utilisées seulement pour la recherche en éducation, incluant la publication du travail final ;
- les interviews soient enregistrées ou filmées
- mon ePortfolio, tout ou partie, puisse être accédé sans ou avec ma présence si je le demande, et qu'il est va de même pour tout outil que j'utiliserais comme un ePortfolio
- toutes les données récoltées puissent être stockées sur le disque dur encrypté du chercheur.

J'ai été informé que si j'ai des questions concernant cette étude, je peux contacter :

- Dominique-Alain Jan, EdD research student at the Open University (UK), email [djan@mac.com](mailto:djan@mac.com).

Ou si j'ai des questions complémentaires je peux aussi contacter les tuteurs du chercheur : Dr Jan Moreland ([jan.moreland@hotmail.co.uk](mailto:jan.moreland@hotmail.co.uk)) ou Dr Inma Alvarez ([inma.alvarez@open.ac.uk](mailto:inma.alvarez@open.ac.uk)) de the Open University.

J'accepte d'entrer dans l'étude

Nom : ..... Date : .....

Signature: .....

Veuillez retourner ce formulaire signé à [djan@mac.com](mailto:djan@mac.com), en tant que pièce jointe.

Merci encore d'avoir accepté de rejoindre cette étude.

### Akzeptanz der Teilnahme an der Studie

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Ich habe das Dokument "Informationen über das Forschungsprojekt" gelesen und verstanden, und ich wurde über die Forschung informiert, an der ich einverstanden bin teilzunehmen « *An investigation of students' practice in maintaining ePortfolios after graduation and at the start of their professional career* »

Mit der Unterzeichnung dieses Dokuments behalte ich mir das Recht vor:

- jederzeit alle Fragen zu stellen, die ich für meine Teilnahme an dem Forschungsprojekt für nützlich halte;
- sich jederzeit ohne Angabe von Gründen aus der Studie zurückzuziehen;
- Zugang zu den Ergebnissen sowie zur gesamten Dissertation, sobald diese genehmigt und veröffentlicht wurde;
- meine Identität und die anvertrauten Daten vor Missbrauch durch Dritte schützen zu lassen;
- alle anvertrauten Daten für die Recherche anonymisiert und verschlüsselt zu haben.

Mit der Unterzeichnung dieses Dokuments verstehe ich außerdem, dass ich das Recht gebe,

- die erzeugten Daten und Informationen nur für die Bildungsforschung verwendet werden, einschließlich der Veröffentlichung der endgültigen Arbeit;
- Interviews werden aufgezeichnet oder gefilmt
- Mein ePortfolio, ganz oder teilweise, kann ohne oder mit meiner Anwesenheit zugegriffen werden, wenn ich es anfordere. Das gleiche gilt für jedes Tool, das ich als ePortfolio verwenden würde.
- alle gesammelten Daten können auf der verschlüsselten Festplatte des Forschers gespeichert werden.

Ich wurde darüber informiert, dass wenn ich Fragen zu dieser Studie habe, kann ich mit: Dominique-Alain Jan, EdD-Forschungsstudent an der Open University (UK), E-Mail [djan@mac.com](mailto:djan@mac.com). Oder wenn ich weitere Fragen habe, kann ich auch die Tutoren des Forschers kontaktieren: Dr. Jan Moreland ([jan.moreland@hotmail.co.uk](mailto:jan.moreland@hotmail.co.uk)) oder Dr. Inma Alvarez ([inma.alvarez@open.ac.uk](mailto:inma.alvarez@open.ac.uk)) der Open University.

Ich stimme zu, an der Studie teilzunehmen

Name: ..... Datum: .....

Unterschrift: .....

Bitte senden Sie dieses unterschriebene Formular an [djan@mac.com](mailto:djan@mac.com) als Anhang an.

Nochmals vielen Dank, dass Sie dieser Studie beigetreten sind.

### Pre-Interview Questionnaire

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Dear Sir/Madam,

Thank you again for having agreed to take part in my study of your ePortfolio practices at university and since graduation. I will soon contact you to discuss with you a convenient time for a semi-structured interview on this subject that will take about 60 minutes of your time.

Prior to the interview taking place, I would be grateful if you could answer the following brief questions:

- 1) What is your current professional position and title?
- 2) In which year did you graduate and from which university?
- 3) For how long did you use an ePortfolio during your university education?
- 4) Are you continuing to maintain an ePortfolio for personal or professional purpose?
- 5) If part of your ePortfolio is public, what is its URL address?
- 6) If it is still possible to access public pages of your academic ePortfolio, what is its URL address?

## Appendix 8 – Main questions asked during semi-structured interviews

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### GENERAL QUESTIONS

1. What is the definition of an ePortfolio for you?
2. What are you doing with your ePortfolio?
3. How do you maintain your ePortfolio?
4. What kind of artefact or aspect of your professional life do you store in your ePortfolio?
5. With whom are you collaborating through your ePortfolio?
6. Are you sharing information from your ePortfolio with other people?
7. How much time do you spend on managing your ePortfolio per week?
8. What are the obstacles you had to face to continue to use an ePortfolio for your teacher professional practice?
9. How do you collect data for your ePortfolio?
10. Which platform do you use?
11. Were you able to continue to use the ePortfolio facilities, offered by your university during your education, once you had left your training teachers institution?
12. What other tools do you use to record your achievement?
13. Overall, what aspect of the ePortfolio approach have you developed (data collection, reflection, tagging, journal, blogging, showcasing,...)?
14. Have you built your own ePortfolio at some point?
15. Are you yourself maintaining an ePortfolio?

## QUESTIONS FOR EDUCATORS/SUPERVISORS

1. How do you think that ePortfolios may be useful for teachers at the beginning of their teaching professional career?
2. Which ePortfolio practice do you expect to be maintained by your trainee teachers after they leave your institution?
3. What taught practice do you expect to be continued after your trainee teachers have left your institution?
4. How deeply were you involved in using ePortfolios with your trainee teachers?
5. To what extent do you think it is important that educators have their own ePortfolio and make it accessible to trainee teachers?
6. How do you evaluate the impact of ePortfolios on your trainee teachers' achievement during their training within the institution?
7. What are the facilities offered to teachers who want to continue their ePortfolio after they have left the institution / school?
8. What is your point of view on internal policies to foster ePortfolio practice in your institution / school?

## Appendix 9 – Example of a transcription of one interview

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Date: 26/03/13 @ 13:00 GMT

Where: Phone

Participant #: FRE02

Recorded: Yes (0001-2013-03-26-1500-1.mp3)

Type of participant: Educator / Teacher / Supervisor

Gender: Male / Female

Age group: 40-45

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- Q Il est 15 heures. Nous allons passer disons une quarantaine maximum une heure ensemble
- A D'accord
- Q Moi je voulais te demander comme première question, en quoi tu trouves que le ePortfolio est un outil qui peut être utile aux étudiants lorsqu'ils quittent l'université et qu'ils commencent leur carrière professionnelle ? Pourquoi ce qu'ils ont appris au niveau du portfolio dans l'université peut être utile au début de leur carrière professionnelle ?
- 10 A Mais ce qu'ils ont appris, juste pour préciser, c'est ce qu'ils ont appris au sujet du portfolio ou le fait qu'ils aient un ePortfolio et l'impact que cela peut avoir dans le cadre de leur insertion professionnelle ? C'est les deux aspects ou simplement
- Q Alors les deux aspects m'intéressent. Donc on peut commencer avec un aspect au niveau des activités portfolio qu'ils pourraient continuer au sein de leur carrière professionnelle et puis aussi le fait qu'ils aient fait un portfolio au sein de l'université, en quoi cela peut leur être utile au début de leur carrière professionnelle ?
- A Alors moi il y a plusieurs choses. Je vais te répondre déjà de façon très intuitive.
- 20 En fait il y a plusieurs choses, je pense que le fait qu'ils aient fait un portfolio tout au long de leur formation c'est un moyen à un moment donné de conserver et d'avoir un aspect mémoriel de tout ce que tu as pu faire durant toute une formation. C'est-à-dire qu'un petit peu comme Stigler en parle dans ses différents articles, c'est la rétention de troisième ordre. Tu as quelque chose à l'extérieur qui à un moment donné mémorise des choses pour toi et donc qui te permet à un moment donné pas de t'en désintéresser, mais au moins tu sais qu'il y a un endroit où tout se retrouvera. Ce côté un peu mémoire personnelle déportée, je pense que c'est déjà un point intéressant. Le deuxième truc c'est que en fait tout au sein de la formation le fait de constituer ce document, ce ePortfolio, ce
- 30 n'est pas simplement collecter et puis poser dans un dossier tout ce qui passe par la main, tout ce que tu as obtenu et tout ça ; ça nécessite aussi de réfléchir à l'intérêt donc d'avoir une démarche un peu réflexive sur l'intérêt, le pourquoi dans quel but et à quoi ça peut servir et en quoi ça peut me servir de conserver

une trace ou un certain nombre de traces correspondant à mes pratiques étudiantes. Et donc le troisième point, c'est le passage de la paroi enseignement-vie professionnelle. Je pense que la méthodologie que ce soit et je repense toujours au petit schéma qu'on avait fait dans le cadre de...

Q ePIC 2012?

A Oui le forum à ePIC, tu sais l'espèce de yin et yang ?

40 Q Ah oui dans le document écrit qu'on avait fait

A Dans le document écrit en fait le monde professionnel pour moi ne se distingue pas forcément du monde étudiant pour un certain nombre d'aspects. Je pense que les deux sont interpénétrés et donc que le fait de passer dans le monde professionnel en ayant un certain nombre de pratiques ou en ayant capitalisé un certain nombre de savoirs et savoir-faire, de compétence, etc. le fait d'avoir cette méthodologie et en plus l'outil qui va bien pour pouvoir faire le même genre de chose, finalement dans le monde professionnel ça sera aussi un moyen de conserver, d'avoir une démarche qui te permet de bien comprendre ce que tu as acquis et de te placer dans le temps et de constituer l'épaisseur du toi qui va te servir et qui va t'accompagner tout au long de ta vie professionnelle qui sera peut-être aussi interrompue par des périodes de formation ou tout simplement dans le cadre de ta vie professionnelle, tu auras tout l'aspect acquisition de nouvelles compétences.

50

Q Est-ce que pour toi le portfolio qui se constitue en début de carrière professionnelle, tu vois cela comme un suivi de ce qui a été fait à l'université ou quelque chose qui repart de zéro ?

A Moi je dirais que c'est une continuité de ce qui a été fait à l'université. Si je prends mon cas à moi, c'est-à-dire que j'ai divers portfolios alors après je suis un cas particulier étant enseignant-chercheur, on peut peut-être me classer dans des catégories autres, différentes je ne sais pas. Mais il n'y a pas de rupture entre ce que j'ai de ma période étudiante finalement et ce que j'ai d'après ma période étudiante. Il n'y a pas forcément de rupture donc je pense que pour moi ça s'inscrit dans la continuité et cette continuité te permet d'avoir finalement ce regard sur ce que tu as fait. Ça te permet d'éventuellement même de réorienter certaines choses. Ce déroulé du toi te permet de mieux voir ce qui serait intéressant pour toi pour des situations à venir par exemple.

60

Q On peut dire qu'il y a différentes pratiques d'usage du portfolio : il y a la pratique réflexive, il y a le stockage d'informations, il y a la présentation de ces informations pour une évaluation par leurs pairs ou par une autorité d'évaluation. Dans toutes ces pratiques qui ont été utilisées lors de la formation universitaire, lesquelles tu penses pourraient survivre dans le cadre de la formation professionnelle ? Ou dans le cadre de la profession en fait ?

70

A Je dirais que toutes sauf l'évaluation à la limite et encore. Mais je dirais a priori sans réfléchir plus que ça, que tout ce qui concerne la présentation, la réflexivité,



l'aspect un petit peu déclinaison en termes de parcours, de projets professionnels et toutes ces choses-là ça me paraît complètement transversal. Par contre dans le cas où au sein de l'université le portfolio était un outil d'évaluation, je ne suis pas certain alors, je ne suis pas non plus un spécialiste de ces portfolios-là, que ce soit vraiment utile. Je ne sais pas d'avoir un truc qui ne soit pas vraiment là pour évaluer quand on est dans le monde professionnel après pourquoi pas. Je veux dire cela peut être une autre forme d'évaluation. Cela peut être dans le cadre de ton suivi professionnel, tes entretiens, les entretiens annuels ou des trucs par rapport aux objectifs qui te sont fixés, etc. à la limite pourquoi pas. Ça peut être une évolution du portfolio d'évaluation vers un autre type d'évaluation qui serait plus adaptée et qui ne serait plus une évaluation académique, mais une évaluation professionnelle.

Q Les pratiques qui ont été enseignées à ces étudiants-là dans ton université, par toi ou tes collègues, les pratiques d'usage du portfolio, comment cela a été enseigné chez vous ?

90 A Ouh chez nous c'est encore un problème [petit rire]. Dans notre université c'est des démarches individuelles d'enseignants. Il n'y a pas actuellement des réflexions qui se mettent en place, mais là Nathalie t'en parlera peut-être mieux. C'est au niveau d'un certain nombre d'unités d'UE qu'il y a dans les IUT, c'est le projet personnel et professionnel, il y a une volonté de réfléchir à comment un outil comme le portfolio viendrait accompagner à la fois l'UE, la démarche et les compétences enfin tout cela serait intégré, mais sinon c'est beaucoup plus des démarches qui sont très individuelles d'enseignants. Moi par exemple quand je parle à mes étudiants, c'est plus leur expliquer un petit peu le cadre, montrer un certain nombre d'exemples et puis après les accompagner et répondre. 100 plus une démarche on va dire de tuteur, d'être là pour éventuellement répondre à des questions réorienter l'idée, etc. et je pense qu'il y a beaucoup de cas et là c'est vraiment une perception, ça ne repose pas sur une connaissance fine de la réalité, mais je pense qu'on est quand même pas mal dans ce cas-là, c'est plus être présent, assumer une tâche de tutorat après avoir présenté les caractéristiques et suivre. Par contre il y a d'autres choses qui se font ailleurs.

Q Mais il y a une formation qui leur est donnée ? Une formation formelle ?

A Non aujourd'hui à ma connaissance non et ponctuellement peut-être que certains enseignants font des formations vraiment plus ciblées, mais qui sont à mon sens plus ciblées outils : « Tiens l'outil fait cela point ».

110 Q Là j'aimerais parler un petit peu des représentations. On a parlé un petit peu des attentes que tu pouvais avoir en tant qu'enseignant sur l'usage du portfolio après avoir quitté l'université. J'aimerais t'entendre maintenant un petit peu sur les représentations que tu as de l'outil : qu'est-ce que c'est pour toi un ePortfolio ? Comment tu définirais le iportfolio ?

A [rire – soupir]

Q Voilà je t'embête hein ?



120 A Non non c'est pas ça c'est qu'en fait si je donne ma définition relativement à mes usages : c'est la collection. On va dire de façon très brutale, c'est un gros CV dans lequel j'empile tout ce que j'ai : j'empile mes publis, j'empile ce que je fais. J'en ai deux en fait, j'en ai un sur eduportfolio et puis j'ai un linkedin donc en fait j'empile un peu tout là-dedans. Dans mon usage la définition ça serait un gros cartable que je peux amener partout, dématérialiser et qui est à tout moment accessible et qui est ma mémoire de rétention trois et puis après si je vais un peu plus loin, mais en tant qu'enseignant c'est un peu compliqué, je dirais que la définition serait un endroit où finalement on a une forme de miroir de ce que l'on a fait qui nous permet à un moment donné de jeter un œil en arrière et peut-être de réorienter notre trajectoire ou peut-être se dire tiens j'ai accumulé tout ça. Cela nous permet d'avoir une autre vision de soi construite au cours du temps, une espèce de déroulé qui nous permet de peut-être mieux comprendre  
130 notre parcours, avoir une vision plus en hauteur prendre de l'altitude par rapport à ce que l'on a fait. Je ne sais pas si je suis clair

Q Mais ce n'est pas un outil que tu utilises toi comme outil réflexif au quotidien ?

A Ce n'est pas vraiment un outil réflexif pour moi. Il y a une part de se dire à un certain moment tu regardes « ah ouais », mais ce n'est pas réellement réflexif. Mais est-ce que c'est propre à mon métier aussi je ne sais pas. Ce n'est pas réellement un outil réflexif pour moi

Q C'est un outil que tu utilises pour présenter ensuite ?

A C'est aussi un outil pour présenter oui

Q Et puis l'outil qui est à disposition des étudiants, vous avez Mahara, je suppose ?

140 A Non non on a pas Mahara alors pour les étudiants c'est avec les moyens du bord à l'heure actuelle. Il y a de toute façon pas d'ePortfolio [empiètement] pardon ?

Q C'est le Lorfolio ?

A Il y a dans certains cas Lorfolio. Il y a dans certains cas l'eduportfolio de carsenti. Dans certains cas c'est aussi tout bêtement LinkedIn qui a un certain nombre de fonctionnalités qui peuvent être intéressantes et dans certains cas cela peut être aussi un blog. L'outil en soi aujourd'hui dans l'université de Lorraine il n'y en a pas. Il y a des choix qui ont été faits, mais ils ne sont pas encore implantés et donc c'est un petit peu avec les outils du bord et moi je pars du principe que c'est l'outil de l'étudiant qui compte. J'ai toujours un peu le souci de voir un outil  
150 imposé alors que peut-être ils arrivent avec une vitesse initiale non nue, avec des choses déjà en place et dans cette logique de continuité il me semble plus intéressant qu'ils utilisent leurs outils à eux. Donc pas de prescription.

Q Donc plus dans l'idée d'un PLE que d'un portfolio en fait ?

A Un peu plus que quand même que le PLE, car si on regarde le PLE c'est vraiment, si on est bien d'accord sur le sigle, c'est le personal learning environment c'est ça hein ?

- Q Oui voilà
- A Donc pour moi c'est quand même plus parce que le personal learning environment, de ma définition j'aurais tendance à dire que c'est la plateforme.
- 160 La plateforme un petit peu adaptée à l'apprentissage, un petit peu adapté pour l'apprentissage et adapté pour un certain nombre de besoins, etc. Je pense que pour moi c'est plus que le PLE, le portfolio. Et le PLE pour moi il est institutionnel en plus
- Q D'accord
- A Mais bon
- Q Vous utilisez aussi le portfolio dans des fins d'évaluation en Lorraine ?
- A Non de mon point de vue non et je crois que oui au niveau de l'IUFM par contre. Au niveau de l'IUFM les personnes avec qui je suis rentré en contact et qui nous ont transmis toute la liste de gens que tu as contactés, eux il me semble qu'ils
- 170 l'utilisent à titre d'évaluation
- Q Donc ça serait intéressant de contacter l'un de leurs enseignants pour voir un petit peu ce qu'il en pense aussi ?
- A Oui à ce moment là je pourrais te redonner les coordonnées des deux personnes avec qui j'étais en contact pour avoir tous les contacts qu'ils ont transmis et je pourrais t'envoyer leurs coordonnées, mais je crois même que [empiètement]
- Q Tu m'avais envoyé les coordonnées de deux responsables
- A Oui il doit y avoir une c'est Exxxx Kxxx que tu pourrais contacter. Peut-être Jxxx-Lxxx Cxxxx, enfin je t'enverrai leurs coordonnées et tu verras directement avec eux
- 180 Q D'accord
- A Et je leur en parlerai comme cela ils sauront
- Q Donc toi tu as ton propre portfolio ? Tu dis même que tu en as plusieurs ?
- A Oui j'en ai deux. Il y a toujours le côté LinkedIn, c'est le côté réseau professionnel. Ma question c'est toujours : est-ce que ça sert à quelque chose parce que finalement mon rêve c'est qu'à partir de ce LinkedIn, j'aie l'offre d'emploi « mais vous êtes la personne qui nous faut on vous donne tant pour venir bosser avec nous », tu vois ce genre de truc [petit rire]. Donc LinkedIn c'est un petit peu un truc qui s'est construit avec le temps, mais sinon depuis un certain temps j'ai un eduportfolio dans lequel je stocke tous mes aspects recherches uniquement
- 190 Q Et tu utilises quel outil pour cela ?
- A Eduportfolio
- Q L'Eduportfolio ?

- A Oui
- Q Ok
- A Ce qui est bien en plus c'est que quand tu as une adresse qui est identifiée, nscakowski@eduportfolio.org, tu as un truc personnalisé et qui est dans mon LinkedIn et dès que je dois donner quelque chose concernant mes travaux de recherches, je mets ce lien là comme cela les gens trouvent tout depuis l'aube des temps
- 200 Q D'accord et puis tu n'as pas utilisé d'autres plateformes dédiées à la recherche justement qui existent où tu peux stocker des documents, des thèses, des papiers [empiètement] directement cités et autres ?
- A Après c'est nouveau en fait pour moi. Le problème après c'est une question de temps. C'est entretenir ces environnements-là de manière à ce qu'ils soient vivants, à jour. C'est du temps. Tu vois là par exemple, je me suis mis sur researchgate donc vraiment le réseau de chercheurs, pour l'instant je m'y suis mis parce qu'un jour j'ai été invité par quelqu'un. Donc il n'y a pas très longtemps, j'y ai exporté toutes mes publis récentes, mais je ne le fais pas vraiment vivre. Quand ils me posent des questions, je réponds. Tu sais il te relance,
- 210 il te demande « vous connaissez machin », est-ce que c'est bien l'une de vos publis etc. Donc j'essaie de répondre quand je suis sollicité. J'y vais de temps en temps, mais après tu as researchgate, mais tu as encore d'autres trucs comme je sais plus quoi le romtoycenter. Je m'y suis inscrit, mais je n'y ai rien fait, car on a discuté avec l'une de nos collègues qui s'occupent justement d'identité numérique des chercheurs, donc elle nous en a parlé donc moi par curiosité je voulais y aller. Il y a LinkedIn, il y a l'eduportfolio, je veux dire ça commence à faire [rire]
- Q Il y a google qui fait aussi ce genre de choses
- A Il y a google+. Mais google+ je ne sais pas l'utiliser. Dans mes pratique je n'ai pas
- 220 trouvé un usage à google +
- Q [empiètement] c'est google scholar qui permet aux auteurs de s'identifier comme auteur puis de mettre les publications à disposition
- A L'utilisation de google scholar c'est par rapport aux [autéro] que j'utilisais bien
- Q Oui
- A Mais après c'est vrai que non pour google j'ai pas réellement d'usage
- Q Tu dis cela prend du temps de maintenir un portfolio. Justement dans les représentations du point de vue des portfolios c'est time consuming, mais vu que cela prend du temps, est-ce qu'on peut penser que les étudiants sont suffisamment motivés ou comment tu peux voir la motivation des étudiants pour justement utiliser ce temps là pour continuer une démarche portfolio alors qu'elle
- 230 n'est plus nécessaire, qu'elle n'est plus imposée par l'institution ?

A Je pense qu'après c'est comme tout, je trouve que ça prend du temps. En même temps si je regarde le périmètre sur lequel je suis assez actif ça me semble intéressant alors passé l'anecdote de LinkedIn, je vois pas trop j'ai des contacts, mais pour l'instant je n'ai pas la sensation qu'il y a un impact au niveau professionnel. Par contre mon eduportfolio je l'entretiens, car j'estime que par rapport à mon travail de chercheur, c'est un lieu qu'il me semble important de maintenir. Après le message à faire passer aux étudiants c'est de justement pas les tromper sur la marchandise en leur disant oui ça prend du temps. Après c'est leur faire prendre conscience, c'est leur faire identifier les usages qu'ils peuvent en avoir et qu'ils peuvent intégrer dans leur temps professionnel finalement et leur faire découvrir dans une démarche plus inscrite dans la durée : vous voyez-on va construire quelque chose, vous voyez cela peut rendre service à tel ou tel endroit et puis petit à petit les inciter, leur faire prendre ce réflexe-là. Il me semble qu'après en tant qu'enseignant c'est faire prendre un réflexe, faire prendre conscience, montrer un petit peu les intérêts, les défauts aussi et puis après on ne peut qu'espérer que ça aura une pérennité dans le temps.

Q D'accord

A Je prends par exemple j'avais un thésard, c'est encore un autre niveau, qui s'est construit tous ces outils-là et au début il ne connaissait pas du tout - c'est un étudiant en science de l'éduc - l'univers technologique ce n'était pas son truc réellement, etc. et maintenant si tu veux tu vois qu'il s'est installé. Il a installé ce truc-là dans ses pratiques

Q Toi tu as un portfolio. C'est important que l'enseignant qui va promouvoir des activités portfolio avec ses étudiants, qui vont utiliser le portfolio avec ses étudiants ait lui-même un portfolio ?

A Encore une fois que dans l'une de nos études sur le portfolio, un des trucs qui était remonté des enseignants, c'était « c'est bon pour les étudiants, mais alors là pas pour nous ». Il me semble qu'à un moment donné il faut être cohérent. Je pense que ce n'est pas parce qu'on est enseignant qu'on doit faire comme les étudiants, mais typiquement je pense que si tu veux en parler, si tu ne fais qu'inciter à et ne pas être conscient toi-même, ne serait-ce que du temps, le côté un peu chronophage si tu l'as pas expérimenté par toi-même, ce n'est pas concret. On te l'a dit, mais à un moment donné c'est quand même une pratique et si tu t'es pas initié à cette pratique, il me semble difficile d'en parler, d'être critique et d'en voir un petit peu les avantages et les inconvénients

Q Est-ce que c'est important aussi pour toi que les étudiants puissent voir le portfolio des enseignants ou pas nécessairement ?

A ... Moi je pense que oui. Après on déborde sur les aspects plus identité numérique, mais encore une fois c'est si tu veux montrer, avoir une démarche éducative en disant « Alors voilà l'identité numérique il faut faire attention. Vous devez être vigilants sur un certain nombre de choses », mais si toi-même à un moment donné tu ne mets pas en pratique et si t'es complètement absent

comment veux-tu qu'à un moment donné tu puisses être crédible ? L'étudiant va te dire « Vous vous n'y êtes pas » et puis en même temps je pense que l'enseignant doit être visible et gérer sa propre identité numérique que ce soit en portfolio ou que ce soit sur les autres traces qu'il peut laisser

Q En quoi est-ce important pour toi l'ePortfolio dans la gestion de l'identité numérique ? Pour les étudiants ? Pour le chercheur ?

280 A Typiquement là on est en train de travailler sur un projet et pour moi l'identité numérique c'est vraiment l'intégralité d'un chemin qui peut être professionnel, personnel, etc. et un des moyens de finalement visualiser ce chemin qui va faire ce que je suis et bien c'est le portfolio. Il y en a d'autres, mais le portfolio sous différentes formes est un moyen de visualiser tout ce chemin qui fait que l'on est ce que l'on est.

Q Est-ce que pour toi le portfolio, les usages portfolio faits par les étudiants durant leur formation est un plus dans l'acquisition d'une employabilité sur le marché du travail ?

290 A Alors là je ne saurais pas répondre... Après par rapport à l'employabilité une capacité à afficher, à être réflexif, avoir une vision de ce qui est important, cette capacité à exposer une part de soi, de montrer ce que l'on montre de soi, etc. ça peut être positif pour l'employabilité, mais je ne saurais pas le démontrer par contre.

Q Ça veut dire que si on dit avoir une pratique réflexive, stocker de l'information, présenter l'information, il faut qu'il y ait une validation qui soit faite ou un accompagnement qui soit fait auprès de l'étudiant

A Un accompagnement oui

Q Donc accompagnement il y a au sein de l'université ?

300 A Non. C'est comme je disais toute à l'heure ce n'est pas institutionnalisé, mais c'est l'accompagnement de ce fait d'étudiant à un enseignant pour l'instant. Alors dans d'autres cas, il va y avoir peut-être quelque chose de plus structuré, mais ça je suis pas en mesure de t'en parler, car je ne connais pas

Q Ok je voulais voir un peu avec toi les représentations que tu avais de l'outil portfolio je ne sais pas si tu voulais ajouter quelque chose par rapport à ce que l'on a discuté jusqu'à présent ?

A Non

Q J'aimerais changer un peu de sujet et parler un petit peu stratégie politique d'établissement régional ou national. Quel est d'après toi en fait les différentes politiques qui supportent les activités portfolio au sein de ton établissement ?

310 A [rire]

Q Que ce soit local ou global, comment tu vois les choses ?

A Alors dans l'idéal ou dans la réalité ?

Q Dans la réalité

A Oh la la [grand rire]

Q Après on pourra parler de l'idéal

320 A Dans notre université c'est un point de concours de divers champs de force. Alors déjà il y a un contexte régional. La région a installé un portfolio régional, le Lorfolio et donc l'université qui est maintenant régionale ne peut pas ignorer cette composante-là, sachant qu'en plus le Lorfolio risque à terme d'être implanté directement dans les ENT des lycées-collèges. Donc pour les étudiants lorrains on risque de les récupérer avec des portfolios déjà constitués sur le Lorfolio donc ça c'est déjà un champ de force. De plus la région pousse assez fort pour que cela se fasse. Après il y a un côté un peu [graduairer, granuairer] à l'intérieur de l'université. Il y a des choses qui se font parce qu'aujourd'hui le portfolio on en parle partout donc il y a des composants qui ont développé leur propre portfolio. Il y a style IUFM qui a utilisé le portfolio depuis un certain nombre d'années pour le côté C2SICE, pour enseignants. Après il y a tous les services d'insertion professionnelle, d'orientation qui eux aussi se posent la question pour le côté portfolio, insertion professionnelle : est-ce qu'il ne faudrait pas un outil ?  
330 etc. et puis il se rajoute à tout cela le côté informaticien au sens large qui dit : « Au niveau national on parle de portfolio. Comme c'est nous qui pilotons le déploiement des outils logiciels, etc. C'est nous qui savons ce qui est le mieux pour vous dans le cadre du système d'information, des contraintes techniques qu'on est les seuls à même d'identifier. On sait exactement ce qu'il faut pour vous ». Alors voilà un peu, enfin de manière un peu caricaturale, les différents champs de force qu'il y a à l'heure actuelle dans l'université de Lorraine. J'en oublie peut-être, mais c'est ceux qui me viennent à l'esprit.

Q Comment on arrive à fédérer ces différents champs de force pour éviter qu'ils s'annihilent les uns les autres ?

340 A Ils ne sont pas fédérés, ils se heurtent. Après il y a des individus qui peuvent servir de médiateur et il se passe des choses qui font qu'il peut y avoir à un moment donné une incompréhension, trop de champs de force et puis il peut y avoir un individu qui a un moment donné fait se comprendre les deux aspects et hop il en émerge quelque chose, mais à l'heure actuelle il n'y a pas de fédération.

Q Même avec une emprise de la région en ayant créé le Lorfolio ?

350 A Oui, car après il y a toujours la défiance. Il y a toujours une forme de défiance, mais là encore je parle en mon nom : c'est la région ils vont pas nous imposer, ce n'est pas à eux à nous imposer et après les gens réfléchissent. Si tu veux donc la région peut appuyer après comme l'université est un système à étage, un gros mille-feuille, la région peut avoir un impact par exemple au niveau d'un président, vice-président. C'est pas pour autant que ça va se rediffuser, se distiller sur les différentes couches et puis il y a toujours quand même une certaine

forme de défiance à mon sens, avec le cadre politique local donc c'est une pression, mais qui n'est pas forcément déterminante.

Q Est-ce que vous avez ou est-ce que tu sais si vous avez des règles écrites au niveau de l'usage du portfolio dans l'établissement, dans l'institution ?

A Alors c'est sûr qu'on a pas

Q Il n'y a pas de politique réellement établit d'usage du portfolio ?

A non

360 Q Quels sont les types de facilités que vous offrez aux étudiants qui aimeraient continuer leur usage de portfolio après avoir quitté l'université ?

A [pause longue] Aucune a priori officiellement, car aujourd'hui il n'y a pas d'outils officiels de l'université. La question se poserait dans ce cas là. Et quand ils sortent de l'université à ma connaissance, il n'y en a aucune.

Q D'accord

A Alors peut-être la question viendra sur le tapis un jour ou l'autre, mais je ne sais pas du tout comment les choses se résoudreont.

Q Mais si quelqu'un à fait quelque chose sur Lorfolio il peut l'en retirer et le mettre ailleurs ou cela reste propriété de Lorfolio ?

370 A Il reste propriétaire. Il peut le retirer et le mettre ailleurs. En plus le Lorfolio est complètement personnel. Il est créé pour un individu. Il t'appartient donc jusqu'à ta mort et une fois qu'il est créé tous tes contenus t'appartiennent

Q Tu peux les exporter pour les remettre ailleurs ?

A Les exporter j'ai pas vu, mais je ne crois pas qu'il ya ait cette procédure : on fait un package qui est ré-importable ailleurs. Tu peux en faire un pdf, un word, un document néophyte, open office et puis tu peux après en faire une page web visible ou non. Un CDE europass par exemple. C'est les différents types d'export à ma connaissance. Après tu n'as pas les ports package que tu peux reprendre et importer dans une autre plateforme à ma connaissance.

380 Q Cela a été développé pour la région par la région ?

A Cela a été développé pour la région par un prestataire. La région a délégué cela à Carrif qui s'est adressé à un développeur sur la base d'un cahier des charges. Le cahier des charges avait été plus ou moins initié par le dernier contrat de plan Etat- Région.

Q C'est possible d'ouvrir un compte pendant quelque temps sur Lorfolio pour moi par exemple ou c'est bloqué ?

A Tu peux le faire, mais la condition étant d'être Lorrain tu indiques que tu habites Nancy par exemple alors tu auras un Lorfolio qui te sera créé. Nous on a eu le



390 problème quand on a fait notre étude dans le cadre du l'orfolio, car tous les étudiants ne sont pas forcément nancéens ou lorrains donc le problème a été détourné en disant que quand tu remplis le formulaire d'inscription tu dis que tu habites en Lorraine.

Q Là on a regardé ce qu'il y avait en réalité donc apparemment pas grand-chose de formel au niveau de l'usage portfolio dans l'université. Quel est d'après toi en fait l'idéal ? Qu'est-ce qu'il faudrait mettre en place pour dynamiser cet usage à l'université puis ensuite de transférer cet usage au niveau professionnel ? Donc deux choses à l'université et ensuite le transfert.

A Je pense qu'il faudrait à mon sens qu'il y ait un politique qui ait réellement la mission de penser : « Ce serait quoi ? ». Quelqu'un nommé politique, mais pas simplement politique pour dire : « Il en faut un », mais quelqu'un qui soit du point de vue de sa formation sensibilisé et qui ait des connaissances dans tous les impacts du portfolio dans la vie d'étudiant, la vie professionnelle, le pourquoi, etc. S'il y a quelqu'un à un moment donné qui a cette vision, cela est assez réducteur, de toutes les fonctionnalités d'un portfolio tout au long de la formation, l'avenir, l'insertion professionnelle, etc. donc il aurait sous sa responsabilité l'intégralité des services qui sont impactés par la mise en œuvre d'un portfolio : les services d'insertion professionnelle, le numérique qui devrait se mettre à disposition de cette personne-là et puis des instances qui seraient un peu liées à la pédagogie style la vie universitaire, etc. Donc pour moi ça ne peut fonctionner et j'ai peut être une vision un peu stalinienne des choses, mais ça ne peut fonctionner que s'il y a quelqu'un qui tient les rênes, qui en comprend l'intégralité des enjeux et qui ne raisonne pas en se disant « Chouette je vais mettre un portfolio, c'est mettre un outil et j'ai résolu ce que j'avais à faire », un petit peu comme les politiques municipales où on estime que parce qu'on a fait un rond point, on a résolu tous les problèmes des gens. Je pense qu'il faut vraiment qu'il y ait quelqu'un qui ait une vision construite de tous les impacts de la mise en œuvre d'un portfolio et qu'il ait sous lui tous les acteurs qui vont contribuer au déploiement, à l'usage et à la mise en œuvre.

400

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Q Le cahier blanc de notre ami cela a un impact sur l'uni ?

420 A Non, mais de toute façon il n'est pas paru encore

Q D'accord

A Moi je n'ai plus de nouvelles de Jean depuis un certain temps. Mais comme il n'est pas paru. Tout le monde sait qu'il existe, mais je suis incapable de dire si (empiètement)

Q C'est deux volumes déjà

A Moi j'ai un troisième volume là

Q Ah oui ?



- A Que j'ai eu par hasard par notre sous-directeur des usagers numériques. Si tu le veux, je peux te l'envoyer d'ailleurs.
- 430 Q Volontiers alors
- A Je te l'enverrai
- Q On a fait un peu le tour des points que je voulais voir avec toi. Est-ce que tu as des adresses de tes portfolios dans lesquels je peux voir un peu ce que tu y a mis ? Des choses qui sont publiques ?
- A Oui je peux t'envoyer ça. Je peux t'envoyer mes portfolios. Je vais te faire un mail en te mettant tout.
- Q Volontiers. Tu as autre chose que tu aimerais dire sur les trois thèmes c'est-à-dire les projections que l'on a, les représentations et au niveau des règlements de la politique pour l'instigation des portfolios en institution ?
- 440 A Comme ça non. Peut-être il me reviendra des choses. À ce moment-là, je te mettrai dans un mail un truc qui me revient au moment de la décantation de ce que l'on vient de se dire. Je te mettrais peut-être dans un mail des petites choses, mais comme cela à chaud non.
- Q Tu as l'impression pour terminer que les expériences portfolio que vous avez faites jusqu'à présent sont positives, neutres, négatives ? C'est quelque chose que vous allez pouvoir continuer, augmenter ou c'est quelque chose qui va mourir un peu avec le temps ?
- Je pense pour moi qu'il y a du bon. Il y a des expériences ou finalement c'est intégré si je reprends l'exemple de l'IUFM, il me semble que c'est intégré dans la formation donc pour moi à partir du moment où cela répond à un besoin et que cela s'inscrit dans une démarche, etc. il y a du bon. Après il y a eu des expérimentations un peu plus malheureuses ou finalement les gens ont dit il nous faut un portfolio et après ils n'ont pas modifié leur pratique. Ils ne se sont pas posé la question en quoi cela allait avoir un impact et puis ils n'ont pas accompagné les étudiants alors il y a un petit côté malheureux. Je pense en plus il y a une poussé vers ça donc il se passera des choses. Je ne pense pas que cela va être abandonné ou que ça va s'éteindre. J'espère qu'on va capitaliser les bonnes pratiques, tirer des leçons des moments un petit plus délicats et qu'on avancera vers quelque chose qui soit au service de la pédagogie, des étudiants, des enseignants et de quelque chose d'un peu dans le temps avec l'insertion de professionnels au bout.
- 450
- 460
- Q Vous avez des contacts avec des associations professionnelles ou avec des entreprises pour leur dire chez nous on fait des portfolios ?
- A Avec les entreprises non, moi non. Mais avec l'insertion professionnelle moi non, mais Nxxx je pense t'en parlera.
- Q Très bien j'ai fait le tour de ce qui m'intéressait pour l'instant
-

## Appendix 10 – Excerpt from one interview with code (first cycle of coding)

In this table, the questions have been regrouped logically to compare participants' answers to the same kind of question. The table regroupes three main themes that were discussed during the interviews: the representations, and the expectations of each participant group, and then the policies that underpin them.

A colour code is used in the far left column:

- questions sharing the same meaning to all the different groups of participants (educators, graduate employees, employers) are marked in **green**;
- questions regarding only the graduate employees are marked in **blue**;
- questions regarding only the educators are marked in **orange**;
- questions regarding only the employers are marked in **black**.

		FRE01	FRE02	FRT01	FRT02	FRT03
<b>1</b>	Representations (What?)					
	What is the definition of an ePortfolio for you?	<p>A tool to collect information (118-119)</p> <p>A CV (120)</p> <p>Ubiquity of access (123).</p> <p>Non reflexive (134-137).</p> <p>A tool for presentation (139).</p>	<p>It is a place to store evidences (82, 110-111).</p> <p>The tool is nothing, the accompaniment is everything.</p> <p>You can only see ePortfolio as a method if you are able to address the method yourself (114-115).</p> <p>The portfolio is a tool not a method (118-119).</p>	<p>It is a technology enhanced CV (40, 44). No social interaction (51), no multimedia content</p>	<p>A modern CV</p>	<p>The ePortfolio is</p> <ul style="list-style-type: none"> <li>• a document more than a method: «it is a CV» (13).</li> <li>• A document for self-appraisal (21)</li> <li>• A reflexive tool (19)</li> <li>• It is highly private (24, 35, 83)</li> </ul>

		<p>A tool that structures the artefacts (files) (128, 82, 70, 202, 204, 208, 219). The tool shapes what you want to do with it too much. The professionals forget that they know how to do things but they struggle to figure out how to fill the empty spaces of the ePortfolio's structure. They are forgetting the methodology (158-163).</p> <p>Reflexivity is the key before being able to use an ePortfolio tool (176-180).</p> <p>Digital identity management is also essential (181).</p> <p>The institution must not choose the tool for the students (185).</p> <p>Students want the institution to impose the tool (193).</p> <p>It is not a tool for assessment (236).</p> <p>ePortfolio is different than a CV (388).</p>			
What are you doing with your ePortfolio?	<i>Storing information</i>	Storing information	Show my skills to present a good CV to	Recording texts and other information about	I don't use it

		<i>Sharing the state of participant's research publication and studies</i>		recruiters when I was looking for a job. I put everything regarding my learning from my primary education to my MA (26). Also every skill I have developed during my different placements (28) and also everything that corresponds to required educator skills (31)	my professional achievements and new skills.	
How do you maintain your ePortfolio?	<i>Passively</i>		Storage Structure Reflexivity (229)	No time to do this. But will do next week (21, 59, 187)	Putting all the documents referring to my professional activities	<i>Not maintaining</i>
What kind of artefact or aspect of your professional life do you store in your ePortfolio?	<i>Research project Publication</i>		Avoid giving too much information. Afraid of what ePortfolios can store as information and how they could be used [information given after the recording was finished, during the feedback on the interview].	Text only.  I didn't know it was possible to add files [information given after the recording was finished, during the feedback on the interview]	Certificates, Professional assessments, Miscellaneous documents  No multi-media (I didn't know it was possible and I don't know how to manage multimedia-documents)	<i>None</i>
With whom are you collaborating through your ePortfolio?	<i>No collaboration</i>		<i>No collaboration</i>	<i>No one</i>	<i>No one</i>	<i>No collaboration</i>
Are you sharing information from your ePortfolio with other people?	Yes		Yes	No (51), not even with the employer when it was the time to search for a new job (53). Doesn't know it was	No	Evidence that this participant's FaceBook and LinkedIn account is on hold with only a few contacts (fewer than 5

			possible to request comments from a community on the artefacts in the ePortfolio (101).		followers and followed users). No profile has been entered and no profile picture. The address is wrong and the employee status refers to a formal job the participant left three years ago.
	How much time do you spend on managing your ePortfolio per week?		2 to 3 hours/w (57)		
	What are the obstacles you had to face to continue to use an ePortfolio for your professional practice?	Having multiple accounts to manage (208-210)  Time consuming (209)	<i>I don't want to give too much information on myself</i>	Not seen yet. Don't quite understand the question.  None, I always put everything in the same folder of my PC  [?]	
	How do you think that ePortfolios may be useful for your graduate at the beginning of their professional career?	Stiger's 3 <sup>rd</sup> order retention (22). Keep all the information at the same place (20).  Reflection (31)  Methodology (36)  Working/Learning portfolio are equal (41-44)  Lifelong learning (51)	<i>No. Only the method counts.</i>		

	<p>Which ePortfolio practice do you expect to be maintained by your students after they leave your institution?</p>	<p>All but assessment (and maybe assessment as well) (73-74).</p> <p>Professional assessment (86).</p>	<p>For assessment and for professional development (28-29). Most students don't care about continuing ePortfolio practices after graduation, according to the participant's study (31). They said they wanted to come back to it (34) but they have abandoned it so far (35). For MA students what is important is the network (37), but the network in real life (42).</p> <p>Does this mean that students differentiate the network they use for leisure (FaceBook) from the one they use for studying (ePortfolio) and the one for their job?</p>			
	<p>What taught practice do you expect to be continued after your students have left your institution?</p>		<p>To network (46) "In France it is important to manage the digital self-identity" (49) and "build a strong virtual network" (49).</p> <p>Reflexivity is not brought by ePortfolio practices (66). But it is an "interesting position" (70).</p> <p>Collecting evidences (70).</p>			

	How deeply were you involved in using ePortfolios with your students?	No global policy. Educator's personal choice (91, 97)  Training about the tool not the method (110).	Teaching them the difference between value and skills (236-240).	This participant claims that "the training was too short [3 hours] (155) in the last 6 months before our graduation (204)", and that "ePortfolio practice should be embedded in the curriculum from year 1"  No method was explained only the tool.	This participant claims a lack of training (a couple of hours in groups). This participant wanted a longer and more personal training on ePortfolio to better engage with the method and the tool.  No method was explained, only the tool	
	Which ePortfolio practice do you expect to be maintained by your employees when they embark in their professional career in your company?					See it as a tool to get a new job or to change in the course of the career (14,23,28)  Used at certain times but not continuously (69, 135-141)

		P001 Educator	P002 Educator	P003 Graduate employee	P004 Graduate employee	P005 Employer
2	Expectation (How?)					
	How do you collect data for your ePortfolio?			Store information somewhere and will put them into the portfolio when I have the time	Information is stored in a folder and, from time to time, put on the Lorfolio	
	Which platform do you use?	<ul style="list-style-type: none"> <li>• eduportfolio (193, 196, 201) linked to LinkedIn (202).</li> <li>• LinkedIn,</li> </ul>	LinkedIn	I don't know	Lorfolio	<ul style="list-style-type: none"> <li>• Facebook</li> <li>• LinkedIn (2 accounts)</li> </ul>

		<ul style="list-style-type: none"> <li>• Researchgate (211)</li> <li>• LinkedIn 2 accounts</li> </ul>				
	Were you able to continue to use the ePortfolio facilities, offered by your university during your education, once you had left university?			Yes, I think (150)	Yes. Lorfolio gives access for life	
	What other tools do you use to record your achievement?	<p>Any tool students want to use. No institutional ePortfolio (151). We take into account what the student is already using (154-155).</p> <p>[interesting but with P002 we have seen that students don't use the tool from the outside their institution for learning and finding a position after graduation]</p> <p>PLE is not private: it is supplied by the institution (165).</p>		None	<p>I use Facebook with my friends</p> <p>Some of my colleagues are using LinkedIn. I have registered but haven't returned for months</p>	
	Overall, what aspect of the ePortfolio approach have you developed (data collection, reflection, tagging, journal, blogging, showcasting,...)?			Reflection (118) <i>but the question is not understood, it seems that the terms reflection, data collection, presentation are new for the participant.</i>	Data collection	



	Have you built your own ePortfolio at some point?	Yes	Yes			Yes (135-141)
	Are you yourself maintaining an ePortfolio?	Yes LinkedIn Above all, eduportfolio	Yes LinkedIn  LinkedIn is more than a ePortfolio because it is also a professional and social network (286).  Participant has 380 [396 in fact] (unknown) followers on LinkedIn (310).  Most of them are eLearning technologists (318).			No
	To what extent do you think it is important that educators have their own ePortfolio and make it accessible to students?	I think this is important but in general educators think this is important for their students but not for themselves (264,265).  Difficult to speak about ePortfolio without having some practice (271-272).  Credibility (280)  Important to teach how to manage the digital identity (277, 286).	It is particularly important they do this (369-371).  It is important that informed and trained educators teach ePortfolio practice. In the case here biology teachers are doing it without prior-experience (401).  Tension between “do it” but “I haven’t done it myself” (416).			

	How do you evaluate the impact of ePortfolios on your students' achievement during their training within the institution?	Important to know where they are going and to record their achievements (18).  [no impact has really been discussed by this participant]	Nothing without teaching and method  To determine if the student is in the right place (272)  Only efficient if institutions are imposing ePortfolio as a strategic tool (279).			
	How do you evaluate the impact of ePortfolios on your employees' career?					<p>Not necessary. Employees (teachers in a teacher-training college) know what they need and they organise their further training themselves (243,256).</p> <p>Could avoid employees stopping improving their skills (261). But nothing is arranged in the institution to foster this.</p> <p>With skills tests and personality tests, they can apply for a new position (74, 75, 242). Employees are more judged on their actions (84)</p>

	P001 Educator	P002 Educator	P003 Graduate employee	P004 Graduate employee	P005 Employer
3 Policy (Why?)					

	<p>What are the facilities offered to graduates who want to continue their ePortfolio after they have left the institution / compagny?</p>	<p>Lorfolio But everyone does it how he/she wants (305-307).</p> <p>Power conflict between Local government policy (Lorfolio) and University's independence (352-360)</p> <p>No facilities provided, because no official platform inside the institution (369).</p>				None
	<p>What is your point of view on internal policies to foster ePortfolio practice in your company / institution?</p>		<p>The regional government provide ePortfolio facilities for professional insertion giving financial incentives to those who agree to use it (99) but practitioners prefer to use another one called PEC. In fact they use both of them to be sure to get the subsidies and continue to use the one they want (102-104).</p> <p>Isn't it a way to confuse students in what to do?</p>			<p>Should be implemented (238, 266) but there are issues with the Law on Personal Data Protection which prevent storing personal information and ePortfolios may contain personal information (35, 278, 281).</p> <p>Also there will be resistance (83, 156, 157) because presenting, reflecting about ourselves may create a feeling of vulnerability.</p>
	<p>What are the reasons that you have continued to maintain an ePortfolio?</p>			<p>It gives me the opportunity to record events and evidences about my new skills and experiences (124, 132)</p>	<p>To store important information.</p>	

					Avoiding losing papers or interesting contacts / comments	
	What has motivated you to do so?			As long as I am learning new things I will collect evidences about them (128)	I have started this during the last year of my study and have continued because the information was already there.	
	Have your previous experiences with ePortfolio had an impact on your decision?			Yes - the training was too short [3 hours] (155) in the last 6 months of our training (204).	Maybe yes, because the information was already there, so I have continued, a bit.	
	Have your ePortfolio practices influenced your personal career development?			No or not yet. Around me no one else is using ePortfolios.	No. I don't think it can. Your personal career is influenced by what you do not what you say.	
	Do you think there are other ways to achieve the same result other than using an ePortfolio?			No idea	I don't know	

## Appendix 11 – HREC agreement for continuing the research



The Open University

From Dr Duncan Banks  
Chair, The Open University Human Research Ethics Committee  
Email [duncan.banks@open.ac.uk](mailto:duncan.banks@open.ac.uk)<sup>[1]</sup>  
Extension 59198

To Dominique-Alain Jan, CREED

Subject *"An investigation of students' practice in maintaining ePortfolios after graduation and at the start of their professional career."*

Ref HREC/2013/1424/Jan/1

Red form

Submitted 03 April 2013

Date 03 April 2013

### Memorandum

This memorandum is to confirm that the research protocol for the above-named research project, as submitted for ethics review, has been given a **favourable opinion** by the Open University Human Research Ethics Committee **by chair's action**.

Please make sure that any question(s) relating to your application and approval are sent to [Research-REC-Review@open.ac.uk](mailto:Research-REC-Review@open.ac.uk) quoting the HREC reference number above. We will endeavour to respond as quickly as possible so that your research is not delayed in any way.

At the conclusion of your project, by the date that you stated in your application, the Committee would like to receive a summary report on the progress of this project, any ethical issues that have arisen and how they have been dealt with.

Regards,

Dr Duncan Banks  
Chair OU HREC

<sup>[1]</sup> please note the change in email address

## Appendix 12 – Context of the French case study

### French teacher training

In France, the power of decision-making is centralised at a national level and so is the organisation of school curricula at every level. This is similar to the situation in Austria but very different from how education is organised in Switzerland. Teacher training was provided, at the time of my research, by regional tertiary institutions called *Institution universitaire de formation des maîtres* (IUFM) which were linked to but independent of one local university. During my research, the organisation changed and now training is overseen by one local University (regional) called the *École supérieure du professorat et de l'éducation* (ESPE) but the syllabus remains the same for the moment.

To become a teacher in France there are several steps the candidate must go through, which are summarised in Figure A12-1, below based on (MENESR, 2016). First, candidates must hold a BA in any subject and pass one entrance examination (CAPES) after one year of MA training in Education. During this year of preparation, trainee teachers study pedagogic theory and work with school classes for teaching practice. The CAPES exam is a *numerus clausus* exam. This means that each year a different number of the best trainee teachers are allowed to continue their training, according to the workforce need in national education. For example, the 33 ESPE in France accepted 6577 trainee teachers in 2010, 11393 in 2015, 11858 in 2016 and 8500 in 2017<sup>25</sup>. After having passed the CAPES selection, remaining trainee teachers continue their dual (theoretical and paid practical) training, which leads to the Master *en métiers de l'éducation et de la formation* (MEEF), an MA in Education. As in Austria, the final teaching certificate is given after they experience one more year of mentored teaching.

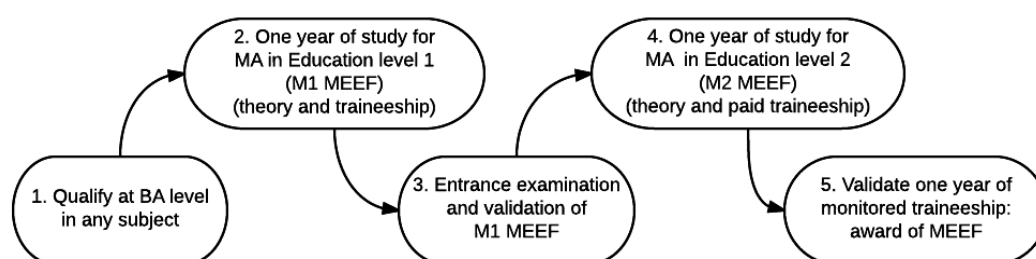


Figure A12-1: The five steps to becoming a teacher in French education. Adapted from MENESR (2016)

<sup>25</sup> Figures vary according to different sources. These numbers are those given on the *Education nationale* website (<http://www.devenirenseignant.gouv.fr/cid98493/postes-capes-session-2017.html>)

After five years of experience a secondary teacher can sit an exam to become either *chef d'établissement*, the equivalent of Headteacher in the UK, or *inspecteur de l'Éducation Nationale* – a person who visits other teachers to assess their professional skills and establish that the curriculum is applied properly. Teachers can also become *enseignant-chercheur*, teacher-researchers, conducting paid research, and publishing articles related to the educational sector (Le Parisien, 2017).

### ePortfolios in French teacher training

Although further professional training is a right given to every teacher in France, it is not usually<sup>26</sup> an obligation (SNES, 2015). It is therefore unmonitored and there is no demand for teachers to maintain professional Personal Development Planning (PDP), or ePortfolio of acquired skills during these further training sessions.

Nevertheless, interest in ePortfolio practice has been growing in France since 2000-2005 in various professional sectors including education. As in Switzerland and since 1985, a decree on tertiary education fosters the recognition of prior learning (VAE<sup>27</sup>) in accessing the higher education syllabus (RF, 1985). This official initiative struggled to become an essential building block in skill recognition (as was the case in Switzerland), although there is evidence of successful local initiatives about VAE – including the use of portfolios since 2002, and later, of ePortfolios. In the Lorraine region, for example, the Lorfolio – an ePortfolio management system developed by the Regional Council of Lorraine in 2007 - has been launched, with the aim of connecting around the ePortfolio different stakeholders such as social workers, educators, and employers. The Lorfolio is open to any citizen of Lorraine and can record their achievements from early scholarship to the end of their professional career, fostering the recognition of both hard and soft skills for the lifelong learning in that region.

The establishment of the Lorfolio project challenges Ravet (2015)'s claim that “there has been no serious action to move paper-based review to ePortfolios” (p. 2) to recognise pre-learning skills. Furthermore, it is not the only project of its type. When the French Ministry of Education published recommendations in 2012 to introduce ePortfolios in tertiary education (Heutte et al., 2012), their report triggered a new wave of interest in ePortfolios in education in

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<sup>26</sup> usually, because art. 7 of decree 2007-1470 regarding lifelong learning of state civil servants, says that they can be forced to do so, if the interest of the service prevails (RF, 2007)

<sup>27</sup> VAE: *Validation des acquis d'expérience*. The acronym used until 2002 was VAP for *Validation des acquis professionnels*. The new terminology encompasses a broader range of skills – personal (soft skills) and professional (hard skills).

France. This resulted in the emergence of ePortfolio projects at a number of French universities: for instance, the University of Strasbourg, Poitiers, UIT of Troye, Avignon (Jan, 2012, 2013) (Jan, 2012, 2013). Moreover, several regional projects fostering the development of ePortfolio practice also started before 2015, such as 'Le CV du futur'<sup>28</sup> in Normandy (La Manche Libre, 2011), the 'WebClasseur' in Amiens and subsequently for every secondary education institution in France (Jarraud, 2009), or the project 'PEC'<sup>29</sup> which started in 2009, and regrouped 34 tertiary institutions in 2015 (Chloup, 2015). More recently there is also evidence for ePortfolio initiatives in French regions: in Reims (RÉSPÉ, 2016), and in Normandy<sup>30</sup>.

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<sup>28</sup> <https://cvdufutur-normandie.ac-nice.fr/>

<sup>29</sup> PEC: *Portefeuille d'expériences et de compétences* (Portfolio of experiences and competences)

<sup>30</sup> <http://www.badgeonslanormandie.fr/>



## Appendix 13 – Context of the Swiss case study

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### Swiss teacher training

Switzerland is a confederation of cantons, each possessing its own Constitution, government and corpus of cantonal laws. The country's federal system implies that cantons are more or less independent in their decisions, although they may still be subject to decisions taken at the federal level. For example, in education in general, the overarching goals and general skills level that students and teachers must attain are fixed by federal education law. But in line with the principle of subsidiarity, the responsibility for and means of enacting and enforcing these decisions is left to each individual canton. Since there are 26 cantons in Switzerland, there are 26 learning plans and 26 departments of education.

Teacher training is organised in the same way, through a federal law applied by cantons. Some cantons combine and work together, rather than building their own teacher training institutions: Switzerland has 15 such institutions – known as Hautes Ecoles Pédagogiques (HEP) in French and Pädagogische Hochschulen (PHS) in German<sup>31</sup>. Teacher training is also divided between two sectors: academic and vocational education, with a federal institution overseeing the latter. To study to become a secondary school teacher at the HEP, candidates must hold a BA from a Swiss university in a subject which is taught in secondary education. A law graduate, for example, is ineligible, because law is not taught as a subject on its own in Swiss secondary schools, but as a sub-subject within Economics; a qualified doctor cannot become a biology teacher, because the secondary school system only teaches Biology – so it takes a BA in Biology to open the doors of the HEP.

Study at the HEP lasts one year with formal assessment at the end of each semester (January and June). To pass, trainee teachers must achieve a specified mark average across different subjects (e.g., pedagogy, didactics, history of education, regulation) and must receive positive feedback from their tutor during their teaching practice or internship. Tutors are

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<sup>31</sup> Translating the French name “*Haute Ecole*” or German “*Hochschule*” to High School would be a mistake. High School in the broad English culture is the name given to higher secondary education in the USA. The term *Haute Ecole* in francophonie refers to a tertiary institution such as the HEC (*Haute Ecole de Commerce*), the equivalent of University of Economic Sciences. Therefore, on their official website, HEP Vaud describe themselves in English as the “University of Teacher Education”

(<http://www.lausanne.ch/en/thematiques/formation-et-recherche/les-formations-par-secteur/formations-specialisees/hep.html>)

experienced teachers who are paid to entrust their classes to a trainee teacher one day a week, and to observe and assess the trainee's work.

Trainee teachers must demonstrate the attainment of 11 main professional skills, assessed by the tutor. In Appendix 15 a copy of the document used at the HEP of Lausanne is presented. Each skill receives a mark between A (excellent) and F (fail) and each evaluation must be justified with evidence, comment from the tutors and reflection from the trainee teacher. In many ways, this evaluation form resembles a 'trainee teacher and tutor's portfolio', although the name 'portfolio' itself is never stated in the HEP rules nor in guidance on good practice for trainee teacher evaluation.

As my research focusses on teachers teaching at higher secondary level, I will therefore only describe the potential professional career for this type of teacher. To be able to teach at higher secondary level, a teacher requires a baccalaureate, then a BA in their teaching subject and an MA before joining a HEP for one year. After graduation, teachers are allowed to teach only in higher secondary schools, and to teach a maximum of two subjects related to their initial BA.

There is no probational time after graduation and teachers can even become the class's main teacher in the first year of their professional career. Unlike other countries such as the UK, Australia or Germany, the career development for a Swiss teacher is very limited. After years of practice, peers in a department at school can vote a teacher to become Head of Department (HoD). HoD is an administrative title which involves no actual decision-making. Instead, the role of a HoD is to organise the department, to ensure that commands given by the Head Master are well applied, and to manage the departmental budget for diverse expenses regarding books or special materials for the department. There is no salary change when accepting the position but the equivalent of one lesson is left free to allow time for dealing with the administrative work.

When required, the Head of Department proposes that a teacher become Deputy Head. This is considered as a different job and the time dedicated to teaching is then reduced to only five lessons a week. The salary is roughly 15% higher than what it is for a normal teacher. There are opportunities for a Deputy Head to apply for Headteacher whenever a place is free. Headteachers can apply for higher positions at the Department of Education level but since 2010 those positions have only been offered to academics or researchers in education or in business management and holding a PhD degree. In this context, there is little need to plan a

career path: promotion to senior management is more based on good fortune than driven by a PDP.

The number of higher secondary schools has been unchanged for decades (120 in Canton Vaud). In the past five years only three positions were opened for recruiting a new Headteacher and at the cantonal level only two new collaborators with a background in teaching were hired. The total population of higher secondary education teachers in Canton Vaud is about 1'350<sup>32</sup>.

By law (Grand conseil vaudois, 1984 Art. 84) further professional development is a right and an obligation. A maximum of 3 to 4 days is considered as normal whilst not legally specified, and each institution has different policies about this. The State imposes the requirement that individual proof of further training is recorded and checked by the secretary's office of each institution, but no further control applies at a higher level and no action is undertaken if and when teachers do not engage with further professional training.

### **ePortfolios in Swiss teacher training**

Switzerland has used portfolio (paper-based) practice for a long time. Voit et al. (2010) and Salini (2014) claim that this is the case in the French speaking region for 'historical reasons' (p. 3). These reasons are not clearly explained but we can deduce them from the following historical facts:

1977: the University of Geneva opens admission to all BA and MA courses (except medicine) without a baccalaureate diploma;

1980-1990: the Universities of Lausanne, Fribourg and Neuchâtel also open their BA courses to candidates without a baccalaureate diploma. Admission is granted after having provided a folder containing the proof of prior learning. Depending on the institution, candidates must be 25 or 30 plus and must have worked in the vocational sector for a minimum of 3 to 5 years.

1993: the cantons of Vaud, Neuchâtel and Fribourg introduce portfolio-based admission procedures in certain social worker training and healthcare institutions

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<sup>32</sup> According to information received on the phone by the Department of Education of Canton de Vaud secretary (15/04/16)

1995: Canton Vaud's obligatory education reform (EVM<sup>33</sup>) introduces a paper-based portfolio for all pupils from the age of 5. This blue folder follows the youth from the start of their primary education up to the end of their ninth year at secondary level.

1996: Foundation of the Association for the Recognition of Prior Learning (ARRA<sup>34</sup>) which fosters the use of (paper-based) portfolios for assessment and recognition of prior learning and soft-skills.

2001: Foundation of the Valida Association which aims to develop a Swiss-wide system for the recognition and validation of prior learning. 2001 is also UNESCO's Year for voluntary work and within this framework, the year sees the creation in Switzerland of the 'Voluntary Dossier'<sup>35</sup>. The aim of this dossier is to identify and recognise skills acquired by volunteers' work in the third sector.

2002: Adoption of the Vocational and Professional Education and Training Act. This Federal act is the first in which the term 'validation portfolio' appears in a Swiss state level document to validate the 'competency profile':

The competency profile also serves as a frame of reference for experts reviewing the candidate's assessment portfolio, enabling them to determine whether the required levels of competency have been achieved (Voit et al., 2010, p. 4).

The introduction of soft skills and prior learning recognition has encountered resistance from professional circles: "[...] people remain sceptical of VPL procedures, particularly the reliance on assessment portfolios. People have doubts as to whether it is possible to demonstrate skills in this manner" (p. 13).

At Federal level, the implementation of soft skills recognition and the development of portfolio-based assessment tend to vary. Due to the subsidiarity principle, each canton and their professional organisations provide different instructions for building their assessment portfolio (Salini, 2007, 2014). In the context of the canton where my case study took place, and where there is evidence of portfolio practice during primary and secondary schooling, I was expecting to find a continuous use of portfolio carrying on into higher education, including teacher education, and during the professional career.

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<sup>33</sup> École Vaudoise en Mutation

<sup>34</sup> ARRA: Association romande pour la reconnaissance des acquis

<sup>35</sup> <http://www.dossier-benevolat.ch>

## Appendix 14 – Context of the Austrian case study

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### Austrian teacher training

Austria is a federal republic constituted of 9 states (*länder*). But whereas in Switzerland the power is shared between the confederation and the cantons, along a subsidiarity principle, in Austria political decisions are taken federally. This includes the national syllabus at each level of the education system. In 2015 there were 126 417 teachers in total including 22 417 in secondary schools. Each year about 1 000 new teachers graduate from teacher training institutions while 3 000 to 4 000 teachers will retire until 2020 (Der Standard, 2017).

Austrian teacher training was reformed during the period covered by my study, starting with a change in the curriculum for primary education teachers in 2015-2016 (BMB, 2017a) and, since the academic year 2016-2017, for all teaching levels. The educational programme for pupils and students remains the same; the last change in the curricula took place in 2000 for general secondary school (*Hauptschule*) and academic secondary school (*Allgemein bildende höhere Schule*) (Garrouste et al., 2010, p. 122). This change aims to respond to the pressure of new teaching paradigms fostering “new technical and didactical methods, and practical teaching skills for tomorrow’s education” (Hamp et al., 2017).

At the time of my research teacher training was organised in 14 *Pädagogische Hochschulen* (teacher training college) regrouped in four regional organisations. Whilst they were independent before 2016-2017, they now have a partnership with their local universities (e.g., phWien, phNiederösterreich, Private *Pädagogische Hochschule* Wien/Krems and *Hochschule für Agrar-und Umweltpädagogik* are all attached to the University of Vienna) (BMB, 2017b).

The conditions for entering teacher training courses have not changed. A baccalaureate level (*Matura*) is compulsory, regardless of the subject studied or the level at which trainee teachers aspire to teach – as in France but not as in Switzerland where a secondary level diploma is enough to enter teaching training programmes for those who wish to teach in the primary sector). Access to teaching training programmes also requires successful completion of an online self-assessment (OSA) test. The aim of this questionnaire is to establish candidates’ strengths and weaknesses through the analysis of their honest answers about their aptitude for teaching. Candidates can use their own portfolio or ePortfolio to document their answers. Passing the OSA test is a primary condition before sitting a written exam which tests

candidates' speech, logic, and reasoning skills, and knowledge of main currents of thinking in education. If candidates get less than 30% of the total marks, they are summoned for an interview. During this talk, candidates are asked to explain how they could compensate for what they lack and improve their skills. After the interview candidates with inadequate results receive the final decision about whether they are accepted or not.

Teacher training programmes last 12 semesters: 8 semesters for a BA in a main subject (e.g., history, biology) which represents the equivalent of 240 ECTS credits; 4 semesters for an MA on a specialised subject, which is different to the main (120 ECTS credits). Together the MA and BA programme, lectures in education and pedagogy are compulsory. The courses are organised by local universities and *Pädagogische Hochschule*.

### ePortfolios in Austrian teacher training

It is difficult to determine a complete history of portfolio and ePortfolio practice in Austria's education of its teachers. Ten years before me, Bratengeyer (2008) and Egger (2008) raised the same problem<sup>36</sup>. For Klampfer (2012), first initiatives to introduce portfolios in Austrian education had to be situated in the 1990's by imitation of the development of such practice in the Anglo-American and French-Canadian world; but they had little impact (*“es vorerst nur wenig Resonanz fand”* (p. 13). On the fringes of the ePIC 2003 conference, EIfEL<sup>37</sup> started the campaign 'ePortfolio for all' which aimed for every citizen in Europe to possess an ePortfolio in 2010. Austria joined the movement in 2006 (Himpsl-Gutermann, 2010, p. 4), and then the EuroPortfolio group in 2014 (Europortfolio, 2015).

In 2007-2008, under the initiative of the Ministry of Education, Arts and Culture (BMUKK<sup>38</sup>), to promote further training in mathematics, biology and computer science (MINT<sup>39</sup>), a project was launched to foster the use of a personal ePortfolio at all levels in education (Egger, 2008). At the same time the national ePortfolio project began and the University of Vienna introduced ePortfolios in pursuit of four major goals:

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<sup>36</sup> “Es fehlten mir und anderen Lehrpersonen immer noch schulgerechte elektronische Portfolios und es gab keine aktuellen Daten über den Einsatz von E-Portfolios” (It was still missing to me and to other scholars, data on the use of ePortfolio in education) (Egger, 2008, p. 6)

<sup>37</sup> EIfEL: European Institute for E-Learning created by Serge Ravet in 2001. Its mission “is to support organisations, communities and individuals in building a knowledge economy and a learning society through innovative and reflective practice, continuing professional development and the use of knowledge, information and learning technologies. EIfEL was leading the Europortfolio consortium and was a founding member of EFQUEL the European Foundation for Quality in E-Learning” (EIfEL, n.d.)

<sup>38</sup> BMUKK: Bundesministerium für Unterricht, Kunst und Kultur

<sup>39</sup> MINT: Mathematik-Naturwissenschafts- und Informatikunterrichts

- support critical study phases;
- decrease drop-outs;
- enhancement of employability;
- support of inquiry-based teaching and learning. (Römmer-Nossek et al., 2008)

The partner faculties of this pilot project encompassed Philosophy, Sports Science, Computer Science, and Educational Science. The mention of the latter marks the first noticeable link between an institution such as the one I studied and the development of ePortfolio practice in teacher training in the published literature.

The Austrian national education system is very open – it always offers a bridge to everyone, regardless of their previous level of experience, to study and acquire a higher level of skills (Archan and Mayr, 2006). For example, trained teachers for primary education can receive the equivalent certificate to teach at higher secondary level by presenting a competence portfolio (*Kompetenzportfolio*) (Bundeskanzleramt Österreich, 2005 Art. 65a). After graduation, trainee teachers are supervised by a mentor throughout one year. Afterwards, there was, at the time of my research, no obligation for any further professional training during the whole career as teacher. Nevertheless, according to Schmid (2005), a few states were requesting up to 15 hours of annual further training. There was also a lack of teaching standards or teaching standard bodies which might regulate the profession. Since then, the landscape has slightly changed and now further training for teachers is compulsory but left to the consideration of each school, alongside up to 26 hours of in-house training per year.

### Référentiel et niveaux de maîtrise attendus au terme du stage du semestre 1

Les objectifs généraux ci-dessus s'inscrivent dans le cadre du référentiel des compétences professionnelles que l'étudiant doit développer durant l'entier de sa formation. Pour chaque compétence sont précisés les niveaux de maîtrise attendus au terme du semestre.

Compétences	Niveaux de maîtrise Au terme du stage du semestre 1, l'étudiant doit être en mesure de
1. Agir en tant que professionnel critique et porteur de connaissances et de culture	<ul style="list-style-type: none"> <li>— manifester une compréhension critique des savoirs à enseigner, afin de favoriser la création de liens significatifs chez l'élève</li> <li>— manifester une compréhension critique de son cheminement culturel et en apprécier les potentialités et les limites</li> </ul>
2. S'engager dans une démarche individuelle et collective de développement professionnel	mener une démarche d'analyse réflexive de manière rigoureuse sur des aspects précis de son enseignement
3. Agir de façon éthique et responsable dans l'exercice de ses fonctions	<ul style="list-style-type: none"> <li>— agir de manière responsable auprès des élèves pour que l'on puisse sans réserve recommander de lui confier un groupe</li> <li>— répondre de ses actions en fournissant des arguments fondés</li> </ul>
4. Concevoir et animer des situations d'enseignement et d'apprentissage en fonction des élèves et du plan d'études	<ul style="list-style-type: none"> <li>— concevoir des activités d'enseignement et d'apprentissage variées, cohérentes et fondées aux plans didactique et pédagogique, et d'un niveau de complexité permettant la progression des élèves dans le développement de leurs connaissances et de leurs compétences</li> <li>— intégrer les activités d'enseignement et d'apprentissage dans une planification globale</li> <li>— guider, par des interventions appropriées, les élèves dans leurs activités d'apprentissage</li> <li>— adapter le déroulement de l'activité aux réalités du moment</li> </ul>
5. Evaluer la progression des apprentissages et le degré d'acquisition des connaissances et des compétences des élèves	<ul style="list-style-type: none"> <li>— détecter, en situation d'apprentissage, les forces et les difficultés des élèves et ajuster son enseignement en fonction de ses observations</li> <li>— utiliser à bon escient un éventail de techniques d'évaluation formelle et informelle (dont notamment l'autoévaluation des élèves)</li> <li>— recourir à des stratégies d'évaluation permettant d'impliquer les élèves, les aider à prendre conscience de leurs manières d'apprendre, de leurs forces et de leurs besoins et les encourager à se fixer des objectifs d'apprentissage personnels</li> <li>— communiquer à l'élève et à ses parents les contenus, les modalités et les résultats d'un processus d'évaluation, ainsi que les modalités de régulation envisagées</li> </ul>



<b>Compétences</b>	<b>Niveaux de maîtrise</b> Au terme du stage du semestre I, l'étudiant doit être en mesure de
6. Planifier, organiser et assurer un mode de fonctionnement de la classe favorisant l'apprentissage et la socialisation des élèves	<ul style="list-style-type: none"> <li>— mettre en place et maintenir des routines permettant un déroulement efficace des activités usuelles de la classe</li> <li>— repérer et analyser des problèmes qui nuisent au fonctionnement de la classe</li> <li>— anticiper des problèmes de déroulement des activités de la classe et planifier des mesures en vue de les prévenir</li> <li>— déterminer et appliquer des moyens permettant de régler des problèmes avec les élèves présentant des comportements inappropriés</li> <li>— choisir des démarches ou modalités de travail qui permettent aux élèves de s'impliquer (dont notamment la coopération)</li> </ul>
7. Adapter ses interventions aux besoins et aux caractéristiques des élèves présentant des difficultés d'apprentissage, d'adaptation ou un handicap	<ul style="list-style-type: none"> <li>— concevoir un enseignement approprié par rapport au développement, au potentiel et aux besoins des élèves</li> <li>— dépister les difficultés, prendre les mesures adéquates et s'adresser aux instances compétentes si nécessaire</li> </ul>
8. Intégrer les technologies de l'information et de la communication aux fins de préparation et de pilotage d'activités d'enseignement et d'apprentissage, de gestion de l'enseignement et de développement professionnel	utiliser efficacement les possibilités des TIC pour les différentes facettes de son activité intellectuelle et professionnelle: communication, recherche et traitement de données, évaluation.
9. Travailler à la réalisation des objectifs éducatifs de l'école avec tous les partenaires concernés	identifier les partenaires de l'école, leurs ressources et leur fonction respective
10. Coopérer avec les membres de l'équipe pédagogique à la réalisation de tâches favorisant le développement et l'évaluation des connaissances et des compétences visées	s'impliquer de façon critique et constructive dans les réalisations de l'équipe et apporter des suggestions en matière pédagogique
11. Communiquer de manière claire et appropriée dans les divers contextes liés à la profession enseignante	<ul style="list-style-type: none"> <li>— maîtriser les règles et les usages de la langue orale et écrite de manière à être compris par l'ensemble de la communauté francophone</li> <li>— s'exprimer dans une langue correcte avec l'aisance, la précision, l'efficacité et l'exactitude qui conviennent à ce que la société attend d'un professionnel de l'enseignement</li> <li>— énoncer des consignes précises et compréhensibles</li> </ul>

## Appendix 16 – Example of one « pièce » Swiss trainee teachers must provide during their course on teaching IT

Pce	Thème	Consignes et critères d'évaluation			
7	<b>Questions vives dans l'enseignement de l'informatique</b>	<b>En se fondant sur la littérature scientifique, explorer une question vive de l'enseignement de l'informatique dans son contexte, son évolution, ses enjeux; en évaluer les impacts sur son enseignement</b>			
		<b>Compétences professionnelles visées (d'après référentiel HEP)</b>			
	(temps estimé hors cours = 20 h)	<ul style="list-style-type: none"><li>• Situer les points de repère fondamentaux (concepts, postulats, méthodes) des savoirs de sa discipline afin de rendre possible des apprentissages significatifs et pertinents chez les élèves (RC 1.1)</li><li>• Porter un regard historique et critique sur les disciplines enseignées (RC 1.2)</li><li>• Recourir à des savoirs théoriques liés aux sciences de l'éducation et analyser leurs fondements et leur application en classe (RC 2.3)</li></ul>			
	<b>Lectures possibles d'entrée en matière</b>				
	Pears, A., Seidman, S., Malmi, L., Mannila, L., Adams, E., Bennedsen, J., Paterson, J. (2007). <i>A survey of literature on the teaching of introductory programming</i> . ACM SIGCSE Bulletin, 39(4), 204–223.	<b>Critères d'évaluation pièce 7</b>		<b>Total</b>	<b>30 pts</b>
				<b>Seuil</b>	<b>20 pts</b>
		1	Ai-je mentionné la question vive choisie? En ai-je fait une brève introduction? Ai-je identifié le(s) sous-domaines de l'informatique dans le(s)quel(s) elle s'insère et ai-je justifié cette classification?		3
		2	En se fondant sur une revue représentative de la littérature, ai-je identifié le contexte technique (et év. social) pertinent pour la question vive abordée? Ai-je décrit son insertion dans le cadre historique de l'évolution des technologies? Ai-je étayé mon discours par des références idoines?		4
		3	Ai-je présenté la manière dont au moins trois auteurs issus de la revue de littérature abordent la question vive?		3
		4	Ai-je élaboré une synthèse des enjeux relatifs à l'enseignement et l'apprentissage tirés de la question vive? Ai-je notamment mentionné la tendance générale, sa popularité parmi les auteurs, les zones de désaccord et la stabilité de ces prises de position au fil du temps?		5
		5	Ai-je formulé une prise de position personnelle argumentée relative à ces enjeux?		2
	Lahtinen, E., Ala-Mutka, K., & Järvinen, H.-M. (2005). <i>A study of the difficulties of novice programmers</i> . In ACM SIGCSE Bulletin (Vol. 37, pp. 14–18).	6	Ai-je explicité en au minimum trois points concrets la manière dont je vais tenir compte des éléments discutés aux points précédents pour élaborer une séance de cours avec mes élèves?		3
		7	Ai-je analysé les apports de ces démarches pour mon développement professionnel (acquis et/ou difficultés), en référence à la compétence RC 1.1 (acquis, limites, pistes futures de développement) ? (1 pt pour les acquis/limites/pistes et 1 pt pour l'analyse)		2
		8	Combien de temps ai-je investi pour la réalisation de cette pièce ? Y a-t-il un écart par rapport à la cible proposée ? Le cas échéant, quelle est son ampleur ? Est-il voulu ou subi (justifier) ? S'il est subi, quelles propositions de régulation ?		1
		<b>PORTFOLIO (critères à l'intention du pair et du formateur, ne figure pas en tant que chapitre dans la pièce)</b>			
	Boustedt, J., Eckerdal, A., McCartney, R., Moström, J. E., Ratcliffe, M., Sanders, K., & Zander, C. (2007). <i>Threshold concepts in computer science: do they exist and are they useful?</i> In ACM SIGCSE Bulletin (Vol. 39, pp. 504–508).	9	Ai-je témoigné à la première personne, ai-je partagé mon cheminement mental, ai-je fait part de mes réflexions (indicateurs d'implication)? Ai-je évoqué des éléments précis en lien avec mes propres actions (indicateurs de précision) ?		2
		Note : en communiquant mon vécu d'expérience, en osant l'authenticité et en citant des éléments précis, je permets à mon formateur de m'offrir des retours formatifs pertinents.			

20 février 2017

Pce	Thème	Consignes et critères d'évaluation	
		10 Une rétroaction prenant en compte les critères d'évaluation de la pièce a-t-elle été offerte à un pair ?	2
		11 Ai-je ajouté une régulation en commentaire de la pièce, suite à l'échange en face à face avec mon pair ? Ai-je ajouté un compte-rendu de l'échange au cas où aucune régulation ne semblait nécessaire ?	1
		12 Ai-je respecté l'aspect formel du portfolio : - critères d'évaluation en titres et sous-titres ; - aspect général (espace entre les chapitres, utilisation de styles, etc.) ; - documents textuels annexés au format PDF ; - moins de cinq coquilles [orthographe et grammaire] par pièce ; - photo permettant de mieux identifier l'auteur ; - respect des normes APA ?	1
		13 Ai-je respecté les délais de dépôt de la pièce, de la rétroaction au pair et de la régulation ?	1

20 février 2017